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ABSTRACT

A British research study documented and defined the level of functioning of advanced neonatal nurse practitioners (ANNPs) in comparison with qualified nurses and junior pediatric medical staff working in the same neonatal units. Subjects were ANNPs, ANNP students, and clinician mentors in 10 units. Data were collected through interviews, questionnaire, diary or checklist, and observation. The role of ANNPs included the following tasks: deciding on patient admission, examining newborns, carrying out discharge examinations on the babies, providing emergency care, carrying out investigations, prescribing in accordance with guidelines, and teaching junior doctors and nurses. ANNPs saw their expanding role as appropriate professional development. Changes their expanded role brought included greater support for junior medical staff, better patient care, and improved communication. Students expressed a need for support, were satisfied with the theoretical input received, felt some areas were covered insufficiently, and enjoyed the learning experience. Clinicians raised the issue of funding and felt that classroom-based teaching had prepared the ANNP students very well. The majority of junior medical staff thought that all nurses should be taking on more as part of their job, but some felt threatened by the introduction of ANNPs. Conclusions were that misunderstandings about the role, problems of dual roles, and absence of sufficient funded ANNP posts made the transition to the role of ANNP difficult. (Appendixes contain 62 references and instruments.) (YLB)

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Breaking New Ground: an exploratory study of the role and education of the advanced neonatal nurse practitioner

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A series from the English National Board for Nursing, Midwifery and Health Visiting

Breaking New Ground: an exploratory study of the role and education of the advanced neonatal nurse practitioner

M.E. Redshaw
A. Harris

Institute of Child Health,
University of Bristol

London, 1995

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Foreword

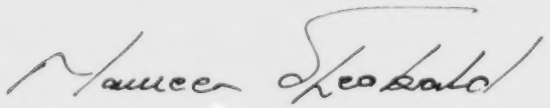
The English National Board is delighted to publish this report as part of its series: *'Researching Professional Education'.*

The aim of this series is to make the results and implications of research commissioned by the Board readily available to the key stakeholders: to policy makers, managers, practitioners, researchers and educationalists. The Board recognises that it is important for these groups to have ready access to relevant research findings from which to plan and implement developments in nursing, midwifery and health visiting education.

The Board's research and development programme is planned to ensure that education for practice is relevant both professionally and academically. Research-based evidence therefore provides an important dimension for policy development.

This report has been accepted by the Board and the research has important implications for current and prospective providers of educational programmes of preparation for advanced neonatal nurse practitioners, for neonatal units and for nurses considering undertaking an advanced neonatal nurse practitioner programme. These implications concern the role of the advanced practitioner and how it is defined; the interaction of the advanced practitioner with other professionals in neonatal care; future developments of both the programme of preparation and the role itself; and the level of support available to students and newly qualified advanced practitioners.

The Board hopes that programme and service providers, advanced neonatal nurse practitioners, researchers and policy makers will work together to address the important findings of this report.



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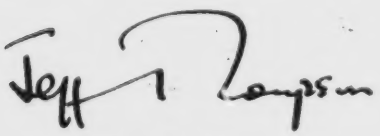

Professor Jeff Thompson

Chair, Research and Development Group, English National Board

London, 1995

Contents

1.	**The Context for the Development**		**6**
	1.1	Introduction	6
	1.2	The background in neonatal care	7
	1.3	Nurse practitioners outside the United Kingdom	7
	1.4	Nurse practitioners in the United Kingdom	8
	1.5	Recent relevant research	9
	1.6	The introduction of advanced neonatal nurse practitioners in the United Kingdom	9
2.	**The Educational Programme of Preparation**		**11**
	2.1	Introduction	11
	2.2	The role of the advanced neonatal nurse practitioner	11
	2.3	Recruitment and selection	13
	2.4	Programme structure	13
	2.5	Assessment of theory and practice	15
	2.6	Student evaluation of the programme	17
	2.7	Discussion	17
3.	**Study Design and Methods**		**19**
	3.1	Introduction	19
	3.2	The research questions	19
	3.3	The neonatal units participating in the study	19
	3.4	Medical and nurse staffing in the participating units	20
	3.5	Individual subjects	21
	3.6	Data collection	21
	3.7	Confidentiality	24
	3.8	Data analysis	24
	3.9	Project modifications	24
4.	**The Role of the ANNP**		**26**
	4.1	Who wants to be an advanced neonatal nurse practitioner?	26
	4.2	What are nurses qualified as ANNPs expected to do?	30
	4.3	Accountability	32
	4.4	What are the nurses qualified as ANNPs doing?	32
	4.5	Prescribing	45
	4.6	How do ANNPs see the role?	45
	4.7	The benefits and disadvantages	49
	4.8	Recent incidents or situations	51
	4.9	Sources of support	51
	4.10	Combining roles	52
5.	**Being a Student and Undertaking the Programme**		**53**
	5.1	Introduction	53
	5.2	Concerns about the programme	53
	5.3	Practical issues	57

	5.4	Programme topics	57
	5.5	Clinical practice and supervision	59
	5.6	Attitudes towards the programme	65
	5.7	Health and wellbeing while on the programme	66
	5.8	Changes over the programme	66
	5.9	Changes to the programme	70
6.	**The Clinicians' Experience**		**72**
	6.1	Introduction	72
	6.2	Funding for training and employment	72
	6.3	Changes in neonatal nursing	73
	6.4	The numbers of ANNPs required and work allocation	73
	6.5	The meaning of mentorship	75
	6.6	Theory and classroom links with practice	76
	6.7	Selection of ANNP students	78
	6.8	The use of protocols	78
	6.9	The clinicians' view	78
7.	**The Perspectives of Junior Medical Staff and Other Nurses on the ANNP Development**		**80**
	7.1	Introduction	80
	7.2	Junior doctor training	80
	7.3	The junior doctors' perspective on the ANNP role	81
	7.4	How do junior medical staff see the future of the ANNP?	83
	7.5	A question of role boundaries?	85
	7.6	Departing from a traditional role	86
	7.7	How do other nurses work?	87
	7.8	The views of other nurses working in neonatal care	89
	7.9	The benefits and disadvantages of the ANNP development	91
	7.10	Adjustments in perspectives	93
8.	**Becoming an ANNP: the lessons learned**		**94**
	8.1	Transition to the role of ANNP	94
	8.2	Continuing education	94
	8.3	Whose education?	95
	8.4	Professional development	95
	8.5	Holding on to the nursing	97
	8.6	Advice to others	97
	8.7	Future needs	98
	8.8	Issues emerging from the study	98
	8.9	Recommendations	99
	8.10	Conclusion	101
References			**102**
Appendices			**105**

1.1 Introduction

In 1993, the English National Board for Nursing, Midwifery and Health Visiting (the Board) commissioned this research into the development of the advanced neonatal nurse practitioner (ANNP) and the educational programme of preparation for this role. The research investigated a number of areas:

- the role of the ANNP
- the programme of preparation developed at Southampton College of Nursing and Midwifery
- perceptions about the role from senior physicians in neonatal units with nurses who have the ANNP qualification
- perceptions of junior medical staff and other nurses in the neonatal units.

The findings of the research have important implications for current and prospective providers of educational programmes of preparation for ANNPs, for neonatal units currently employing ANNPs or intending to send nurses to attend such a programme of preparation, and to nurses considering undertaking such a programme. These implications concern the role of the ANNP and how this is defined; the interaction of the ANNP with other professionals in neonatal care; potential future developments of both the programme of preparation and the role itself, and the level of support available to student and newly qualified ANNPs. The detailed recommendations are given in Chapter 8.

There has been increasing interest in and concern about the role of the advanced nurse practitioner from professional bodies and organisations, including the British Paediatric Association, The Neonatal Nurses Association, the Royal College of Nursing, and the United Kingdom Central Council for Nursing, Midwifery and Health Visiting (UKCC), as well as some regional task force groups. The concern and interest spring from two different points of view: one focus is with the scope of professional practice and accountability (UKCC, 1992), the other with the possibility of nurse practitioners taking on clinical duties normally assigned to junior doctors and improving the quality of this type of care. A form of nurse practitioner role has now been tried in a wide range of specialties including cardiovascular surgery (Eaton 1993), accident and emergency (Morris et al, 1989; Read and George, 1994) and paediatrics (Kobryn and Pearce, 1991; Fradd, 1994), and is being considered by others. The extended role of the nurse in intensive care units was reported on by Last et al (1992), and Pickersgill (1993) described an alternative model where the night nurse practitioner at Guy's Hospital filters calls to on-call doctors and carries out some of the technical tasks required.

A programme for advanced neonatal practitioners (ANNPs) was developed and approved by the Board in 1992, by the Southampton College of Nursing and Midwifery, part of what was then Wessex Regional Health Authority. While the need for assessment and evaluation of the programme and the role and function of the ANNPs in their own units was recognised, little formal data collection and appraisal of the professional role had taken place previously. As the number of qualified practitioners increases and the role is developed, changed and consolidated, such data collection becomes increasingly important. In the light of this, the Board commissioned this research study as part of the evaluation process. The main aim of the research was to document and define the level of functioning of advanced neonatal nurse

practitioners (ANNPs) in comparison with qualified nurses and junior paediatric medical staff working in the same neonatal units. Linked with this was the aim of assessing the ways in which the Wessex educational programme, as it is currently structured, meets the needs of ANNPs.

The nature of the programme is outlined and discussed in Chapter 2, the methodology in Chapter 3 and the findings on other aspects of training and clinical practice in Chapters 4-7. These latter chapters focus on the developing role, the role in practice and perceptions of the growth of the development by the different professional groups concerned.

1.2 The background in neonatal care

Since the 1970s, the field of neonatology has seen rapid advances in terms of knowledge and expertise in caring for the small, sick newborn baby, and nursing and medical techniques have been refined. Nurses and midwives working in this area have developed a skill base from which to deliver technical and practical care, and this is now embodied in the post-registration programmes providing specific training in special and intensive care of the newborn. (The term neonatal nurse is used throughout this document to refer to nurses and midwives who have chosen neonatal nursing as their career pathway.)

Further evolution of the nurse's role in neonatal care has taken place in the United States and Canada, commonly in response to medical staffing crises (Boxall, 1987). Health care practice and provision in both these countries has similarities with that in the United Kingdom, and the three countries face many similar issues. In the United States, changes in specialist medical training and reduced medical coverage in neonatal care resulted in the need to find another type of care provider. Bellig (1980) suggested that nurses in neonatal care were ideally placed to expand their traditional roles, and in many cases were already doing so officially or unofficially in the interests of patient care. The role has most commonly expanded in a technical direction in the United States, encompassing a wide range of practical clinical procedures with nurses taking on all the junior medical staff duties and sometimes working in nurse practitioner teams (Karp, 1993). In Canada, although the role is clinically focused and contains a technical element, greater emphasis is placed on expanding the nursing role in areas such as administration, teaching, parental support and research (Beresford, 1991).

Following the publication of a two-part study on the role of the neonatal nurse practitioner (NNP), education programmes were developed in the United States (Johnson, Jung and Boros 1979a, 1979b). Training initiatives proliferated, often in response to the needs of individual units, and usually covered aspects of resuscitation and management of babies within specific institutional protocols (Tschetter and Sorenson, 1991). In an attempt to address the standardisation of NNP education, the National Association of Neonatal Nurses (NANN) produced a position paper defining the overall role, minimum-level competencies and standards for practice. This advocated that all nurses complete a formal programme of graduate nurse education as preparation for becoming a NNP (NANN, 1992). Between 1987 and 1991, data from NANN showed an increase in practitioner programmes nationally and a decrease in certificate or continuing education programmes. There was also a concomitant increase in graduate degree programmes for NNPs; the development of such a programme NNPs to manage nurse-led neonatal intensive care units has been described (Watkins et al, 1992) and continues to date (Karp, 1993).

1.3 Nurse practitioners outside the United Kingdom

Much has been written about American nurse practitioner developments in general. The impact of the work setting and factors affecting role performance have been discussed (Hupcey, 1993; Thibodeau and Hawkins, 1989), as has the need for role definition and job

descriptions (Hunsberger, 1992), while the need for guidelines on different aspects of the development, such as education (Price et al 1992), collaborative practice (McLain, 1988; Campbell et al 1990), decision-making (Lamb, 1991) and liability and authority (King and Sagan, 1989) has been recognised. However, there have been relatively few formal evaluative studies of NNPs, and despite relatively large numbers of qualified practitioners, research on aspects of effectiveness and performance has generally been based on small subject numbers. At the beginning of the 1980s, the results of a telephone survey of 54 level III neonatal intensive care units were reported, revealing that nurses were performing many practical procedures and replacing house officers in a variety of roles (Harper et al, 1982). The need for greater training, and the widespread interest of institutions in employing nurse clinicians or specialists were also emphasised. At the same time, caution was sounded by others (Cassady, 1982), and the diversity of educational programmes, possibility of litigation and a lack of clear vision and evaluation were highlighted.

The problems of making meaningful comparisons of nurse practitioner performance and competence against that of other groups were highlighted by Prescott and Driscoll (1980), and the need for clearly delineated research questions and well-designed studies was stressed. In a review of the studies on nurse practitioner effectiveness, assessing the relevance, clarity and methodological flaws (Feldman et al, 1987), the difficulties inherent in making comparisons were highlighted. Only 56 of the 248 studies examined met the criteria for adequacy. Even the 'adequate' studies ranged widely in quality and methods used; many involved only very small numbers of practitioners and other professionals, though more data were collected on patient response.

More recently in Canada, Mitchell et al (1991) compared the knowledge, problem-solving, communication and clinical skills of graduating NNPs and paediatric residents. Using a range of methods including observer assessment and written and oral testing, it demonstrated that graduating NNPs' knowledge, problem-solving, communication and clinical skills were equivalent to those of second year paediatric residents. In the US, Trotter and Danaher (1994) reported findings from a survey of the opinions and attitudes of physicians, qualified nurses and families regarding the NNP role; unfortunately the response rates were rather low, though respondents were satisfied with the NNPs' clinical skills and knowledge base and the care they provided.

1.4 Nurse practitioners in the United Kingdom

By contrast nurse practitioner developments have only relatively recently taken place in the United Kingdom, with few established posts. The literature largely reflects the introduction of nurse practitioners in the area of primary health care (Stilwell et al, 1987), and interest in the concept of the ANNP has been mixed (Hale, Boxall and Hunt, 1987). Findings from a National Association of Neonatal Nurses survey on NNPs concluded that while it was important to look to the future, there were many reservations about development of the role (Boxall 1987; O'Hagan, 1992). It was felt that fundamental issues such as staffing adequacy, career structure, autonomy, preparation to practice and the goal of delivering holistic family care would need to be addressed.

Changing areas of professional interest, overlap between nurses and doctors in neonatal care and the need to address problems of medical staffing are issues in a wider debate about nursing and medical roles. Some clinicians have suggested that discussion is much needed and that in debating the question of professional identity and autonomy, concerns and anxieties should be allowed to surface (Chiswick and Roberton, 1987); they argued that only through frank and open discussion can the nursing and medical professions learn to respect each other's positions. Other clinicians and neonatal nurses have focused on concerns about using junior

doctors with limited experience in neonatology to undertake skilled practical procedures and make clinical decisions (Hall et al, 1991). In contrast to junior medical staff, nurses working in neonatal units were seen as generally well-motivated, skilled and experienced in the care of sick newborn infants, and less transitory. Some paediatricians and neonatal nurses in at least one health region in England believed that the care of sick newborn infants could be improved by extending the role of the neonatal nurse as had already occurred in the United States (Hall et al, 1992).

1.5 Recent relevant research

Current proposals to restructure specialist medical training (Department of Health, 1993) and reduce workload and contract hours for junior doctors' (NHS Management Executive, 1990; 1991) have implications for the ways in which nursing roles are likely to be shaped in the future. These proposals have concentrated interest and led to a search for 'appropriate' tasks that can be taken on by nurses, preferably without specialist training (Higginson, 1992; Greenhalgh, 1994; Audit Commission, 1995). The interface between nurses and junior doctors was investigated in a task-based study (Greenhalgh, 1994) which resulted in the authors suggesting a list of duties and procedures which could be taken on by nurses. These included taking a patient history, venous blood sampling, referring for investigation, writing discharge letters and administration of drugs via peripheral intravenous cannulae. It was estimated that these activities took up 11%-16% of junior doctors' time spent in the wards during the day, and 12%-24% at night. The resource and educational implications of the recommendations were not addressed, however, and the need for further research on the consequences for nurses and the organisation of nursing was emphasised.

The evaluation of nurse practitioner posts in the South East Thames Region (Touche Ross, 1994) took a different approach, looking at a small number of practitioners working in a wide range of contexts, including general practice, accident and emergency and a women's aid refuge. The findings identified key factors that influenced effective role implementation and patient satisfaction with nurse practitioner care and consultative style. Nurse practitioners were judged to practice safely and effectively and were in some situations providing a service to patients who may not have otherwise received care. The study concluded that nurse practitioners' greatest potential was in primary health care settings, and that further consideration regarding deployment in acute settings such as accident and emergency was required.

A similar study in Trent Region was carried out on 32 nurse practitioners also working in a wide range of settings (Trent Regional Health Authority, 1995). The report concluded that these new posts had made an important impact on junior doctor workload, particularly with regard to intensity of work. However, there was a need to focus on nurse practitioner roles as part of advanced nursing and not as medical assistants.

1.6 The introduction of advanced neonatal nurse practitioners in the United Kingdom

Wessex was first region in England to design and implement a programme for the preparation of ANNPs. From a research perspective, the role of the ANNP may be conceptualised as having four main elements, those of clinical practice, education, research and consultation (Figure 1.) By acquiring these core competencies at an advanced level an ANNP, theoretically at least, has the scope to carry out sub-roles as a leader, an advocate for patients and staff, to act as a role model and as an agent for change. The variables under consideration that may be expected to influence how the ANNP role is expressed, are shown in Figure 2. and discussed in the subsequent chapters of the report.

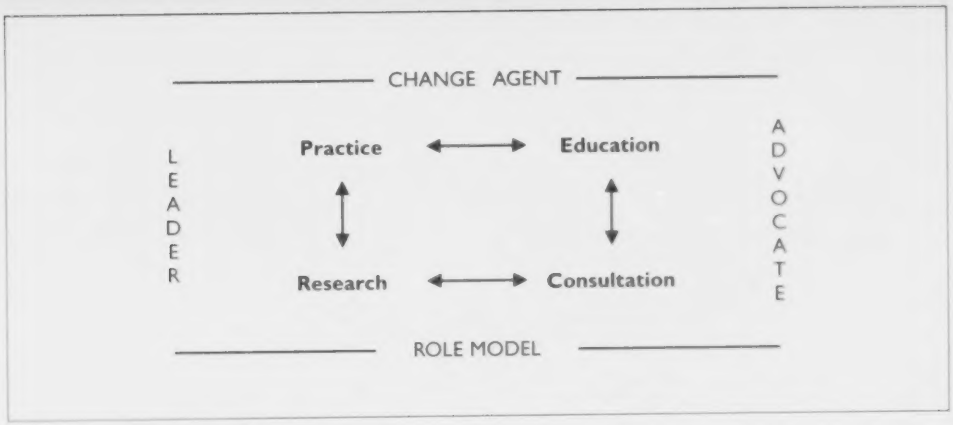

Figure 1: The dynamics of the ANNP role

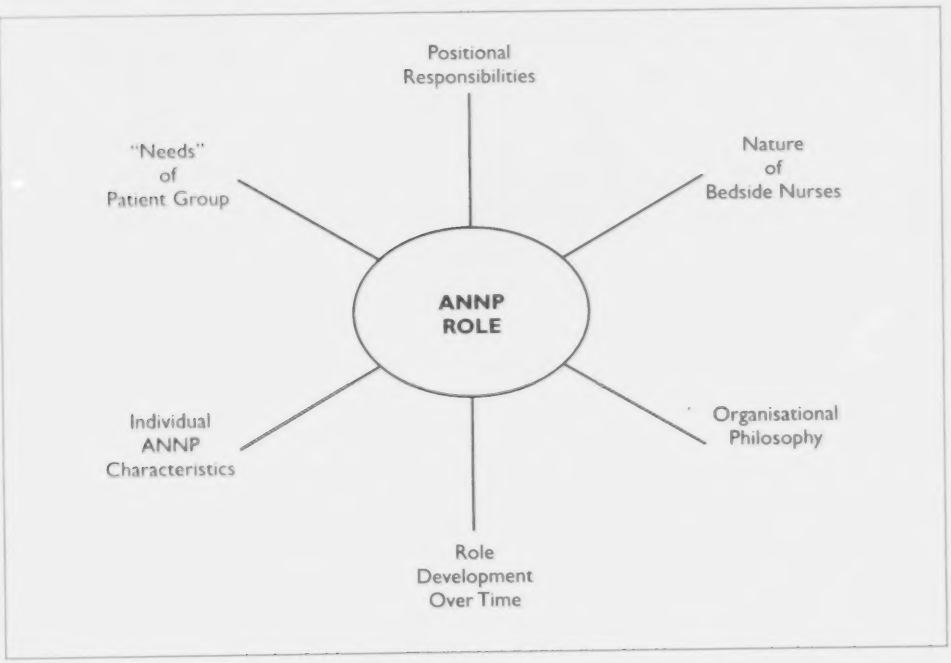

Figure 2: Variables influencing the ANNP role

2.1 Introduction

The first ANNP programme (ENB A19), took place in 1992. Two further complete programmes were run in 1993 and 1994 and a fourth in March 1995. In the first instance the programme was approved for three years and for 8-10 students. The numbers have now been increased and an extension given for a fourth year in order that the findings of this research project can be used to inform the future development of the programme. The programme documentation and the practitioners involved in the first three cohorts have been the subject of this exploratory study. Following a thorough examination of the documents made available, key features of the programme design and structure are described and discussed in this chapter. Having described the educational context for the development, data on the experience of programme students and the role of the ANNP in practice are presented in the subsequent chapters.

Programmes approved by the Board which are given an 'A' number are specialist programmes in which an educational institution itself submits an outline curriculum to the Board, unlike than the official Board programmes, for which the Board itself issues the outline curriculum. If the curriculum is approved, the submitting institution can run the programme, as can other institutions who wish to do so. The curriculum for the ANNP programme was developed by a large management team with working sub-groups, consisting of consultant neonatologists, paediatricians, and senior nurses from the Wessex region.

2.2 The role of the advanced neonatal nurse practitioner

The practice expected of the ANNP as a result of having undertaken the programme provides a framework within which the programme itself and the actual role of the ANNP subsequently can be examined. The handbook for the programme (Southampton College of Nursing and Midwifery, 1994) states that the aim is to produce ANNPs whose role is described in the following ways:

The ANNP role is *'a unique and complex activity specifically centred around the holistic care of the sick and or low birth weight neonate, together with an in-depth support and educational role with the entire family, and combined with high technology management as an extension of practice. The total role demonstrates a unique bridging activity, transcending traditional medical and nursing boundaries in the interests of improved neonatal care, and able to respond to change and act as a change agent within the totality of neonatal nursing care.'*

This is seen as a *'leadership role within clinical practice, with the practitioner acting as a resource for his or her peers, facilitating research skills and knowledge, and capable of critical thinking and high level decision making. In clinical terms, this practitioner will be the ideal role model and lecturer or facilitator of advanced clinical practice within the neonatal team.'*

The limits of practice for the ANNP are *'clearly defined within the preparation set out in the submitted curriculum, but for individuals the boundaries of practice will be largely determined by the employer in negotiation with the practitioner. This may lead to a number of slightly differing role interpretations according to the needs of individual neonatal units, and the level of confidence and experience of the Advanced Neonatal Nurse Practitioner.'*

This was not envisaged as an administrative role and thus *'ANNPs would not be expected to assume management responsibilities within neonatal units, but would concentrate their advanced skills and knowledge on their full and expert clinical role. However, they are likely to be involved in data collection for research and audit, and to be a role model for clear, concise and accurate record keeping.'*

At all levels these ANNPs are expected to be *'exemplary role models'* with *'an important part to play in the education of their nurse colleagues and junior medical staff, as well as setting new standards of excellence for supporting parents and staff.' They will be responsible for 'their own continuing professional education and updating, have the ability, motivation and skills to participate in clinical research and the promotion of research based learning and practice and assist colleagues with the interpretation of research findings, in respect of their value and application to clinical practice.'*

The ANNPs will be required to be *'fully accountable for their negotiated role, which will include advanced levels of skills and knowledge and reflective practice. They will be accountable for negotiating appropriate professional updating and self-development within their extended role.'*

It is expected that the ANNP will be a *'Registered nurse or midwife with an established neonatal nursing background, who has successfully completed a period of education on a recognised NNP programme'*. The role will be undertaken *'in accordance with local policies and protocols, and under the direction of a neonatologist'*. With regard to accountability, the ANNP will be *'directly accountable to his or her nurse manager, and clinically responsible to a paediatric consultant or neonatologist'*.

In the words of the submission document and handbook, on successful completion of the ANNP programme, the practitioner will be able to do the following:

- *'Assume a leading role in the clinical care of the neonate including assessing, planning, implementing and evaluating total care.*
- *Participate in the 'setting, maintaining and evaluating standards of care as an on-going programme of quality assurance'.*
- *Become a resource and support for 'other disciplines including, but not limited to, junior doctors, nurses midwives and medical social workers'.*
- *Counsel and support families and members of staff as appropriate.*
- *Initiate and participate in areas of clinical research.*
- *Participate in the education of nursing and midwifery staff, parents and any other personnel involved in the care of the neonate.*
- *Be involved in the organisation of, and participate in unit meetings and perinatal audit.'*

The specific tasks and activities to be included in the clinical role of the ANNP, as described in the submission document and handbook, are listed in Appendix 1, but include such items as cannulation, attending high risk deliveries and performing lumbar punctures. Each unit is expected to have protocols available to cover the management of babies with different kinds of problem. The areas covered in the protocols are listed in Appendix 2, and relate to medical management of the sick and preterm infant and include ventilation, fluid and electrolytes and problems such as jaundice and sepsis. Few, if any, mention nursing aspects of neonatal care.

2.3 Recruitment and selection

Students for the ANNP programme in Southampton were initially drawn from the Wessex Region, but since 1993 it has been open to nurses from outside Wessex through an informal mechanism of 'accreditation' of neonatal units. For the most recent programmes (the third and fourth years), students have been accepted from many parts of the country. Student recruitment can be in place up to a year before the programme commences.

Units wishing to second students to the programme are visited by the programme coordinators who meet and discuss the facilities available and the student's needs with the consultant neonatologist or paediatrician and senior nurses. The purpose of the visit is also to discuss the concept of the ANNP and integration of this role into the unit; the support and commitment required by all those involved is emphasised. At this stage the programme coordinators develop a profile of the learning area, including staffing and resources, but the way in which they utilise this is unclear – presumably it takes account of functions such as staffing level and facilities. As part of the selection procedure the senior nurse manager and senior paediatrician in the unit are required to give written agreement of their support to the proposed candidate.

As stated in the submission document, all candidates are required to:

a. be on parts 1, 8 or 10 of the Register

b. possess ENB 405 certificate or equivalent

c. possess a minimum of two years post-registration nursing experience in neonatal/special care

d. pass an entrance examination

e. meet the profile standard at personal interview

f. be deemed medically fit to undertake the programme

g. disclose any convictions under the Rehabilitation of Offenders Act 1974.

Students are also expected to possess certain basic knowledge in order to be accepted onto the programme; this is listed in full in Appendix 3, but includes the basic structure of matter, molecules, chemical reactions, solutions, acids and bases, protein and protein synthesis, lipid and cell membrane structure and nutrition. A pre-programme study package is provided for those without some of this background knowledge which is designed for completion over a 10-week period. This aims to ensure students are familiar with basic scientific concepts and to increase their scientific vocabulary. Understanding of the material in the pack is tested prior to staring the programme, using a paper with a true/false format.

2.4 Programme structure

The ENB A19 Advanced Neonatal Nurse Practitioner programme is of 39 weeks duration and is divided into two parts as outlined in the submission document.

Part 1

- of 26 weeks, duration
- students have supernumerary status
- contains most of the theoretical input
- consists of an orientation programme, followed by a combination of study days, study blocks and clinically based allocations.

Originally all the theoretical input was to be provided during study blocks (348 hours) and the initial clinical instruction delivered over 17 weeks in total interspersed between these blocks.

Part 2

- of 13 weeks duration
- mainly based in the students' own unit
- supervised practice and consolidation of learning is continued under the mentorship of the consultant paediatrician or neonatologist, the senior neonatal nurse and the programme leader
- further study days are attended during this period in order to fulfil set learning objectives.

2.4.1 Programme curriculum

The programme's philosophy of neonatal care is based upon a *'commitment to family centred, client oriented, holistic care'*. It acknowledges the combination of *'high technology management and skilled specialist nursing'*, requiring those delivering neonatal care to have *'the necessary expertise, motivation, professional commitment and judgement to undertake appropriate and safe care'*.

Based on this philosophy the programme was *'designed specifically to meet the needs of suitably qualified and motivated neonatal nurses, and to enable them to achieve, through an advanced educational experience, a wide range of high level skills and knowledge in order to provide a high standard of care for small and sick infants'*.

According to the submission document, the two components on which the curriculum is based are that of goal formation and programme building (Tyler, 1949; Ausubel, 1963). Thus the curriculum moves from the simple to the complex, aiming to ensure that a sound knowledge of the biological, behavioural and social sciences underpins the complex and technical aspects of practice required of ANNPs. Complex issues are dealt with in an incremental way and overall the curriculum strategy aims to focus on *'the role and accountability of the practitioner'*.

2.4.2 Programme content

At the time of submission the curriculum was divided into 27 units of learning, 22 of which units covered system-based medical topics, including neonatal respiration, biochemistry, haematology, microbiology and genetics. The remaining five units included the programme introduction, the expanded role of the neonatal nurse, communications, family dynamics and the principles of research. Conventional medically-oriented components thus accounted for 282 hours learning and the remaining units occupied 66 hours. Consolidation and revision were included. A number of changes have been made to the programme; these are listed in Figure 3.

Years 1 and 2

Timetabled formal teaching totalled 396 hours (354 hours in weeks 1-26 inclusive and 42 hours in weeks 27-39 inclusive); this was delivered in five study blocks and 26 study days.

Year 2 (second programme)

Overall formal teaching times were the same, but organisation of the study blocks was slightly different, to give students a longer introductory block. Students had 26 study days as previously.

Year 3

Formal teaching time in the programme timetable was increased to 417 hours (345 hours in weeks 1-26 inclusive and 72 hours in weeks 27-39); this was delivered in eight separate study blocks and four-and-a-half study days.

Figure 3: Changes to the programme timetable

2.4.3 Teaching staff

A variety of personnel have been used for teaching different elements of the programme over the three years it has been running. Examination of the timetable for 1994 shows that at least 55 professionals were listed for classroom teaching; almost half of the lecturers (25 of 52; 48%) were medically qualified and working as consultants. Teaching staff included:

- two librarians
- a fire officer
- the two nurse programme coordinators
- a midwifery tutor
- two consultant neonatologists
- eight consultant paediatricians
- fourteen other consultants from specialties including chemical pathology, cardiology, genetics and radiology
- staff from the pharmacy and pathology departments of the hospital
- approximately 10, mostly senior, university lecturers, to cover physiology, pharmacology, human morphology, nutrition and the principles of research.

Ten nurses and midwives contributed directly to the teaching, though in terms of timetabled hours this input was considerably lower than that coming from the medical and other academic university departments. The exception to this was the midwifery input on embryology and the developing fetus, maternal health, labour and delivery. Teaching on decision-making and problem-solving (6 hours) and communication skills (6 hours) was provided, but it was not clear at exactly what level these were taught and from which discipline. Greater input from the social sciences was recommended by the validation team at the original approval, but the extent to which this has been provided appears to be limited. The nursing aspects addressed included theories and concepts of nursing, accountability and professional development, transition to the role of the ANNP, quality assurance, bereavement and health education.

2.5 Assessment of theory and practice

Assessment of written work takes place throughout the programme in the form of summative and formative assessments; these are in the form of a multiple choice questions,

short answer questions and essays. In the second part of the programme students also are required to undertake a research critique and in weeks 34 and 38, a case study and a viva examination.

The case study, of approximately 5,000 words, must focus on *'a holistic case study of a baby, through from admission, and having the full range of care and management discussed. It should include a family profile'*. The viva is conducted to explore *'the full range of the curriculum in terms of its application to practice and the role of the advanced neonatal nurse practitioner'*. This oral examination is carried out jointly by consultant neonatologists and experienced neonatal nurse practitioners, and is modelled on the exit examination for membership of the Royal College of Physicians.

One of the sub-groups involved in the programme was an assessment group, members of which included consultants, the head of midwifery education and programme coordinators. The terms of reference covered production and review of established assessment procedures, ratification of decisions and publication of results. Unfortunately, the research team were unable to obtain access to the documentation associated with changes to the programme and curriculum agreed by the group.

It is expected that the assessment of clinical practice is undertaken in the home unit by the student's personal medical mentor (a senior paediatrician) and an experienced senior neonatal nurse as associate mentor. The clinical component of this advanced programme requires *'meticulous assessment of competence of both the enhanced holistic role . . . and the specific extended skills which are included within this role.'* The student ANNP and apprentice ANNP are to be assessed continuously by both designated mentors and the student will be *'responsible for maintaining the assessment documentation which will contain a competency rating to ensure that the appropriate level of competence is achieved'*. Thus, a clinical profile is kept by the student and the medical mentor during the programme. These are checked at regular intervals by the programme coordinators in Southampton, however, the records were not made available to the research team, and the precise way they may be used in any formal monitoring process is not known. It is expected that the ANNP will be competent to perform most of the required clinical skills and procedures by week 36 of the programme, but further time may be necessary for some areas of activity and less common procedures. It is understood that subsequently it is the responsibility of the student to keep a record of his or her own practice.

The use of documentation and 'performance indicators', aims to assist the student, mentor and programme coordinators to identify clinical progress though the programme. Students are rated on 17 technical items (Appendix 4) by the medical mentor using a 1-5 scale; this is done five times during the programme. Performance on more general activities, such as physical examination, diagnosis and case presentation is assessed three times using a three-point scale (based on the Joint Committee Higher Medical Training assessment form) (Appendix 5). A further category has been added to this form relating to advanced neonatal nursing care, also for assessment by the medical mentor.

The role of the mentor in teaching and assessment is seen as critically important in monitoring progress. The role of the nurse mentor, however, is less well developed and defined, though the handbook states that the ANNP student *'will be assessed continuously by both her personal medical mentor, and the designated experienced neonatal nurse'*. Assessments by the medical mentor during the programme have been formalised in a routine way, but no direct evidence of similar nurse mentor assessment was found in the documentation or reported by the most recent students. However, some aspects of an advanced holistic nursing role are assessed during the case study and oral examination.

2.6 Student evaluation of the programme

The programme is evaluated by students both in general terms and by evaluation of all classroom teaching sessions on a daily basis. Students also complete an evaluation form covering the programme arrangements and organisation, theoretical teaching, clinical experience, supervision and assessment at three points during the programme, and are asked to complete a self-evaluation form. Feedback and information from the evaluations has been used in changing and developing the programme, and information from the self evaluations is used to address particular problems or individual issues raised.

2.7 Discussion

Examination of the documentation suggests that the ANNP programme is an intensive, high quality programme, packed with information and demanding a great deal of the nurses undertaking it. The content and organisation of the programme itself is the focus here. The extent to which the aims of the programme have been achieved and the way that the role has been put into practice are described from different perspectives in the following chapters.

The programme is currently planned and timed so that the acquisition of new clinical skills and the knowledge and principles underpin them is a pressing goal. The submission documentation suggests there is a strong medical bias, both in terms of academic content and assessment strategy. This kind of teaching and assessment of written and practical performance is not that generally associated with traditional nurse education. High demands are placed on the students in terms of time spent in the classroom, the requirement for private study and the volume and complexity of the material taught. There is an additional expectation that students take responsibility for their own learning and negotiation of teaching time in their own units. Inter-unit differences in attitudes and in staffing arrangements, and the vulnerability of nurses taking on a new role can make effective negotiation problematic, at least for some students.

The units of learning take a 'product-oriented', rather than a conceptual approach, and are perhaps more appropriate for the medically related topics than the more holistic aspects of patient-centred care. Time constraints on the curriculum appear to have resulted in the concentration and dominance of medical and technical subjects at the expense of the more conventional nursing and humanistic topics; there are no specific units of learning covering nursing issues, while relatively little time is available for quality assurance, standard setting, teaching and assessing, protocol development and research.

During the first year, eight hours of teaching time was spent on research, while students were also required to undertake private study and to attend a 'journal club'. However, although lecture time on this subject has been slightly increased and more reliance is placed on the journal club for research training, it is questionable whether students can be adequately prepared on this basis to *'initiate and participate in areas of clinical research'*. Similarly, the input to equip practitioners to *'be involved in setting, maintaining and evaluating standards of care as an on-going programme of quality assurance'* is also small.

There are also areas which could appropriately be considered as components of an advanced nursing programme which the curriculum does not seem to address. These include the psychological aspects of role change, professional development, elements of management, infant behaviour and development, and the organisation of care delivery. While some account is taken of the need for reflective practice, there seems to be little that will enable or facilitate the development of these skills within this time pressured programme.

The programme document also provides insufficient information regarding the individual attributes required of neonatal nurses selected for preparation to practice as ANNPs.

The qualities sought by the interview panel when recruiting are not made sufficiently explicit, and specific requirements in relation to neonatal intensive care experience were not made conditions of entry at this stage.

It is understood from the programme organisers that there have been changes of emphasis since initial approval, informed by the internal evaluation of the programme from both the students' and clinicians' perspectives. Summaries of these adjustments and modifications were not available to the research team, and thus the comments made are based on the documentation available, which included the student handbook.

The structure and organisation of the programme and the experience of the students on it are discussed in Chapters 4 and 5; recommendations in relation to the programme and its development as a whole are presented in Chapter 8.

3.1 Introduction

The research team set out to assess the role of the ANNP in practice and the type of work undertaken and to evaluate the programme of preparation for the new role. From the outset it was acknowledged that this would to be an exploratory, relatively short-term, but comprehensive study of a small number of individuals and the limited number of neonatal units in which they were working.

3.2 The research questions

The research questions broadly covered three aspects of the development: the ANNPs' role and perceptions; the programme, being an ANNP student and the process of transition, and the roles and perspectives of the other staff working in neonatal care.

The specific questions that the research sought to answer were:

1. How is the ANNP role organised in practice?
2. What are nurses qualified as ANNPs expected to do?
3. What are nurses qualified as ANNPs actually doing?
4. How do ANNPs see their role?
5. How do nurses in the process of becoming an ANNP experience the programme and perceive the development?
6. How do medical staff working in neonatal units with one or more advanced practitioners perceive the development and role of the ANNP?
7. How do ANNPs function in comparison with paediatric SHOs and qualified nurses working in the same neonatal units?
8. How do nursing staff working in neonatal units with an advanced nurse practitioner perceive the development and role of the ANNP?
9. What are the long-term career plans of nurses having completed the ANNP programme?
10. How do the different professional groups working in neonatal units with ANNPs perceive the future organisation of neonatal care?

3.3 The neonatal units participating in the study

One programme, the associated students and graduates and their working colleagues were to be the focus of the research, and consequently sampling problems did not arise. All neonatal units in the former Wessex Regional Health Authority which were involved in the ANNP development participated in the study. The qualified ANNPs were working in 10 different units, nine of which were in the former Wessex Region, the other in an adjacent region. One was a large regional centre, six were district units and three were intermediate sized, sometimes described as sub-regional units (RCP, 1988). At the time the study was initiated, all these units had one or more ANNPs who had completed the programme in Southampton and had returned to work in the unit.

The staffing and skill mix implications of adding a new tier or role to the staffing structure in neonatal care need consideration. The changes to be described are taking place at a time of wider change in the health service, and local innovations such as the introduction of ANNPs, are likely to affect the way in which skill-mix reviews and re-profiling take place. The ease and effectiveness with which a new role can be introduced depends to a great extent on the numbers and mixture of staff already employed.

Some details about the participating neonatal units are shown in Table 1, and others are discussed in the following section. Unit managers were the source of this information.

Unit	Nursing Establishment*	Intensive Care Cots	High Dependency Cots	Special Care Cots	Total Cots
1.	51.00	6	–	22	28
2.	48.04	7	4	19	30
3.	38.55	3	–	22	25
4.	32.72	4	–	17	21
5.	29.00	4	–	14	18
6.	24.56	2	3	9	14
7.	23.86	2	2	12	16
8.	19.60	2	–	12	14
9.	14.00	2	1	9	12
10.	11.38	2	–	9	11

* Nursing establishments measured in Whole Time Equivalents

Table 1: Participating units with details of nursing establishments and cot numbers

The six neonatal units from other parts of the country whose nurses were part of the third student intake for the programme were generally larger, with a mean establishment of 56.9 whole time equivalents (WTE) (ranging from 31 to nearly 90) and a mean of 27 cots (range 18-40). Thus, the study consisted of 10 units (nine within and one adjacent to the former Wessex region) studied in detail, and six units from other parts of the country, which participated by questionnaire.

3.4 Medical and nurse staffing in the participating units

The largest neonatal units in the study had a consultant neonatologist, otherwise a paediatrician with a special interest in neonatology was usually responsible for the unit. All but one unit had some middle grade cover. In six of the 10 units studied in detail, junior medical staff worked a one in three or four rota, while in the remainder, usually the larger units, a full or partial shift system was in operation.

Using 1983 BPA/RCOG staffing recommendations for neonatal units of four WTE per intensive care cot and 1.25 per special care cot (Redshaw, Harris and Ingram, 1993a) four of the 10 units were found to be at or within 10% of the requirement; the other units, however, were less well staffed. Using the more recent and slightly different recommendations of the BPA/BAPM in 1992 made little difference to the figures. The proportions of staff with qualifications in the specialty also varied between these units, ranging from 24-76% (mean 54%). Only one unit employed a technician, eight employed nursery nurses and seven employed

nursing auxiliaries. The proportion of nursing staff who were nursery nurses varied, ranging from none to more than a third of the nursing staff (6 of these 10 units employed 20% or more of their staff as nursery nurses.)

3.5 Individual subjects

All 10 units were visited by the research team who met some of the each unit's medical and nursing staff and the ANNPs where possible. All the ANNPs, ANNP students and clinician mentors were subjects in the study; unselected samples of junior doctors, managers and other nurses working alongside ANNPs were also recruited.

3.6 Data collection

A range of methods was used in this exploratory study, as shown in Table 2, which contains details of the subject groups and the type of data collected. In addition, where possible, the programme organisers, ANNPs and unit managers were also interviewed informally.

Subject Group	Interview	Questionnaire	Diary/Checklist	Observation
Unit Managers		* 16		
ANNPs		* 15	* 15	* 6
ANNP Students		* 12 * 12 * 12		
Qualified Nurses		* 79		
Paediatric SHOs/ Registrars	* 20			
Paediatricians/ Mentors	* 12			

Table 2: Subject groups and methods used in the study

The topics covered using the different methods were similar, and where possible the same questions were asked so that comparisons could be made between the responses and activities of the different groups.

3.6.1 Unit managers

A self-completion questionnaire was sent to the 10 unit managers at the beginning of the study requesting basic information concerning the size of the unit, staffing, the kind of babies cared for and the role of the ANNP in the unit. Apart from basic information, the aim was to obtain the views of managers whose units were involved in the development of the ANNP role and programme. However, two of the managers who completed questionnaires were also ANNPs, while several other questionnaires were partly completed by ANNPs in addition to managers. Thus, the views expressed, while of interest, were not uniformly from a group of managers. Questionnaires were also sent to and returned from the six managers of neonatal units in other parts of the country whose nurses were then part of the third programme intake.

3.6.2 Advanced neonatal nurse practitioner students

The aim was to follow one cohort of students through the ANNP programme by collecting data on them at three time points in order to gain a comprehensive picture of the programme from their perspective. At the end of the first two-week teaching block a meeting was arranged with the third year's intake of students at which a first questionnaire was administered. All 12 students completed this, and following two further meetings, questionnaires were administered in the middle and near the end of the programme. The questionnaires requested information on their present post, education and experience, personal circumstances, attitudes to neonatal care and perceptions of the ANNP role. The students were also asked about becoming a full-time student, study skills, their supervised clinical practice, teaching, areas of concern and professional development following the ANNP programme.

3.6.3 Advanced neonatal nurse practitioners

In order to obtain a fuller picture of the programme and the way in which the ANNP role was being put into practice, a variety of research methods were used. Initial formal contact with the 16 ANNPs who had completed the programme was made by letter. They were sent and asked to complete a diary-checklist about their work, consisting of the same set of questions for each of 10 working shifts, to be filled in consecutively. The questions covered procedures and activities, how busy the shift was, the numbers and dependency of the babies in the unit at the time and details of other duties undertaken. The diaries were sent out in March 1994, to the ANNPs who had qualified in 1992 and 1993; this was not at a time when junior doctors were being inducted. Fifteen diaries were returned over the following eight weeks; the other ANNP had left neonatal care by this time.

Following visits to their neonatal units by the research team, each ANNP subsequently received a questionnaire covering background information on their position, social circumstances, work experience and education prior to the programme. They were also asked about the programme content, methods and organisation, their future relationships with other professional groups, situations where they had contributed positively as an ANNP and the activities they had or would have liked to take on as part of the new role.

Additionally, six nurses employed as ANNPs were 'shadowed' for a working shift by one of the research team who is an experienced neonatal nurse. This included going to the post-natal wards, delivery suite, theatre and any other parts of the hospital that the ANNP visited or was called to as part of her duties. The ANNPs were observed working in five neonatal units (of all three types) for a total of 47 hours. Data collection used focal observation sheets marked at 15-minute intervals; all nursing and medical activities were noted, as well as interactions with other members of staff.

At this early stage in the development of the ANNP role, and with the small number of ANNPs so far involved, it would be misleading to calculate an 'attrition' rate for those starting out on the programme. Longer term data collection on this aspect is required.

3.6.4 Clinician-mentors

It was decided that questionnaires would not be the best means of obtaining data from medical staff. With the small numbers of individuals involved, complete data were required and poor response rates in returning questionnaires could have jeopardised this area of the study.

Interviews with all the 12 clinicians functioning as medical mentors for the ANNPs during and after the first two programmes were carried out in the 10 hospitals where the neonatal

units were located. A structured interview schedule was used with a mix of open-ended and structured question formats covering topics that included medical staffing, current unit policy regarding a range of procedures, ANNP duties, numbers of ANNPs required, use of protocols, the experience of mentorship and the future for ANNPs in their particular unit. The schedule took between 30 minutes and one hour to administer.

It had been planned to include a parallel group of nurses who had also been mentors to the ANNP students and a short questionnaire was designed for this group. The extent to which the mentor relationship was developed and utilised varied enormously. For the first set of students senior nurses or managers were likely to be nurse mentors, while for the second programme those who had qualified as ANNPs also became mentors. The fact that some ANNP students were also managers and that some then became mentors themselves made obtaining the views of this group less feasible than originally anticipated. A small number of senior nurses who had been nurse mentors, but who were not ANNPs, were contacted and did return some information about their experiences.

3.6.5 Junior medical staff

Junior doctors working alongside nurses trained as neonatal nurse practitioners were interviewed in seven of the 10 units studied. A total of 20 interviews were conducted with 14 senior house officers (SHOs) and six registrars or senior registrars. The seven neonatal units from which junior doctors were interviewed consisted of one regional centre, three district units and the three intermediate sized units. The aim was to interview staff with some experience of ANNPs providing neonatal care as members of the nursing and medical team. All seven units had at least one nurse employed as an ANNP and half had more, though not all were in funded ANNP posts. Time in post for the junior medical staff as a group ranged from 1-14 months, (mean of 5.2). As would be expected, the six registrars had generally worked longer in their present post (4.5-14 months; mean 7). At the time of interview all 14 SHOs had been given their initial introduction to the unit, though some were seen quite soon after this; their experience working with ANNPs ranged from 1-11 months (mean 4.7).

The interview schedule took 20-30 minutes to administer and covered the junior doctor's present post and responsibilities, contracted hours, rotas or shift systems, induction, involvement in teaching or being taught by ANNPs, use of protocols, areas where ANNPs could or should work, activities that could be undertaken, advantages and disadvantages, possible working arrangements and the numbers of ANNPs needed. As with the clinician interviews, a mixture of open-ended and structured question formats were used to allow some expression of personal views and to allow issues to emerge that had not been covered.

Recruitment of junior medical staff was dependent on their availability at the time of visits to the unit, but there is no reason to believe that any bias has arisen in this regard.

3.6.6 Other nurses

Following visits to five of the units studied, the research team talked to nurses working on the early and late shifts, and asked them to participate in the study of the ANNP developments in the region. Originally it was planned to collect data only from nurses with the ENB 405 post-registration qualification in neonatal nursing, but it was subsequently agreed with the steering group to include all the qualified nurses, as many without this neonatal nursing qualification were experienced senior nurses working alongside the ANNPs. Both small and large units were included in this part of the study. Lists of staff were provided by the manager or senior sister and individually addressed questionnaires were left for the nurses to complete in their own time. The topics covered in this questionnaire included current post and duties,

education and experience, perceptions of the ANNP role and its benefits or disadvantages. The pack contained stamped, addressed envelopes for return, and additional copies of the questionnaire were sent if returns had not been received within four weeks. A total of 79 (62%) of questionnaires were returned.

3.7 Confidentiality

Throughout the study confidentiality was of the utmost importance. Rigorous professional guidelines were followed: numbered questionnaires were used; data and comments were anonymous, and information regarding respondents was only accessible to the research team. These points were stressed to the manager and the nurses being asked to participate at each hospital visit. The clinicians and junior medical staff were also reassured about confidentiality prior to being interviewed.

The study findings are presented in Chapters 4, 5, 6 and 7, covering the main areas addressed by the research, and are followed by a concluding chapter. The words of nurses and doctors are used to illustrate and illuminate the points being made; quotations, with slight modifications to maintain anonymity, come directly from the questionnaires or interviews in which open-ended sections had been included.

3.8 Data analysis

The relatively small numbers of subjects involved in this study and the qualitative nature of much of the data collected have resulted in largely descriptive analyses. Where possible, comparisons are made between the different subjects groups, but since the numbers vary considerably, these are often based on the proportions of subjects responding or behaving in a particular way. Thus the numbers of subjects are given in each figure.

3.9 Project modifications

Modifications were made to the original research proposal following discussion and agreement with the steering group members. These were made in the context of the exploratory nature of the study, methodological considerations and the problems associated with another project team having embarked on research with the same subjects. A previous large-scale study had been carried out by the authors on more than 700 nursing subjects using similar question formats on similar topics (Redshaw, Harris, Ingram, 1995).

Extensive data collection from regional task forces on junior doctors and the workload of junior medical staff meant it was not practicable to obtain detailed diary data from this group. Shorter diaries than originally planned were used with the ANNPs, both as a result of their workload and their concerns about the project. The value of observational studies of the type proposed was recognised, as were the methodological problems in comparing the quality of care achieved by the different professional medical and nursing groups. The small numbers of ANNPs available at the time of the study, the varied nature of their work and that of SHOs, and the fact that as nurses taking on a different role they had already been the focus of considerable attention professionally, contributed to difficulties in designing a suitable method of collecting comparable observational data. With greater numbers of nurses involved in ANNP developments other kinds of comparisons may be more practicable in the future.

The original specification included a parent group as subjects in the study, but at this early stage in the development of the ANNP role, it was felt appropriate to place the greatest emphasis on the professional groups involved. The small numbers of ANNPs, differences between

them and a lack of a clearly separate identity from the parents' perspective contributed to the decision not to include this group.

In the event, over a relatively short time period, substantial data were collected on and from all the professional groups concerned, the details of which are contained in the findings presented and discussed in Chapters 4, 5, 6 and 7.

4.1 Who wants to be an advanced neonatal nurse practitioner?

Contextual data were collected for the study as a background to the research questions. These included information about those nurses being selected and entering the programme and the units from which they came. Some of the unit information and details of the junior doctors who participated in the study were presented in Chapter 3; the data that were collected from individuals are presented here, sometimes with data from nurses working alongside qualified ANNPs.

The ages of the nurses in the first three intakes of the programme in Southampton are shown in Figure 4. The most common age group undertaking or having undertaken the programme at the time of the study was 30-40 years. The average age was 35.2 years (range 29-43) compared with an average of 37.1 (range 22-62) for the other nurses working in the same units.

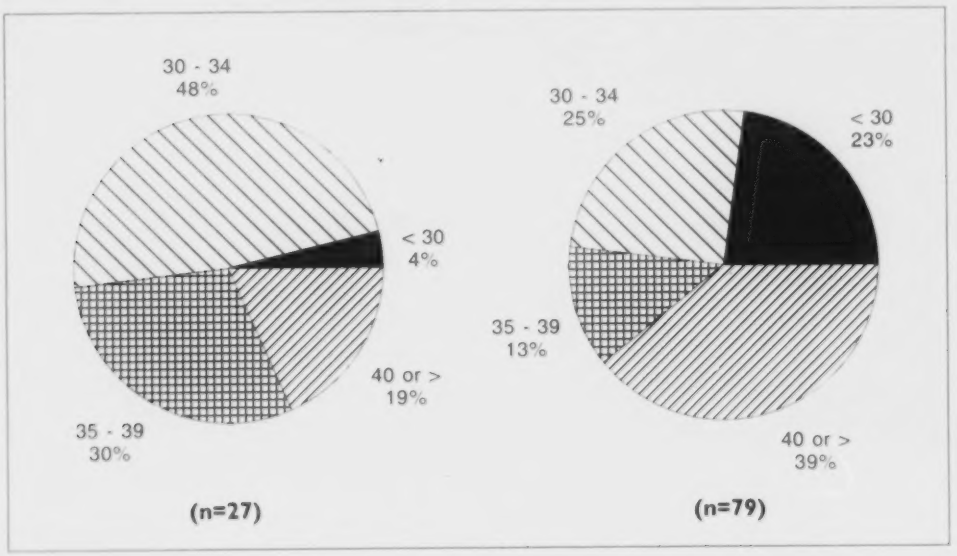

Figure 4: Comparison of age groups of nurses undertaking the ANNP programme and other nurses working in the same units

Personal circumstances can affect whether individuals wish to or are able to undertake an intensive programme of this kind. As Table 3 shows, the proportions of ANNPs and ANNP students with partners and other dependants are similar to other nurses working in the units, but those taking the programme were less likely to have children. The proportion of males in neonatal nursing is low in comparison with other areas of the profession, and there was only one male among the first 27 students undertaking the programme.

Social Circumstances	ANNPs (n=27)	Other Nurses (n=79)
Partner	78 %	78 %
Children	33 %	54 %
Other Dependants	7 %	4 %

Table 3: Comparison of social circumstances of nurses undertaking the ANNP programme and other nurses working in the same units

The position and title of nurses prior to undertaking the programme and of qualified nurses working in the same units are shown in Figure 5. The relatively senior position of those undertaking the programme, only 33% of whom were staff nurses or staff midwives, contrasts with the other nurses, 78% of whom were at this level. The data on grades, shown in Figure 6 reinforce the point; more than 60% of those entering the ANNP programme in the first three years were employed at G grade.

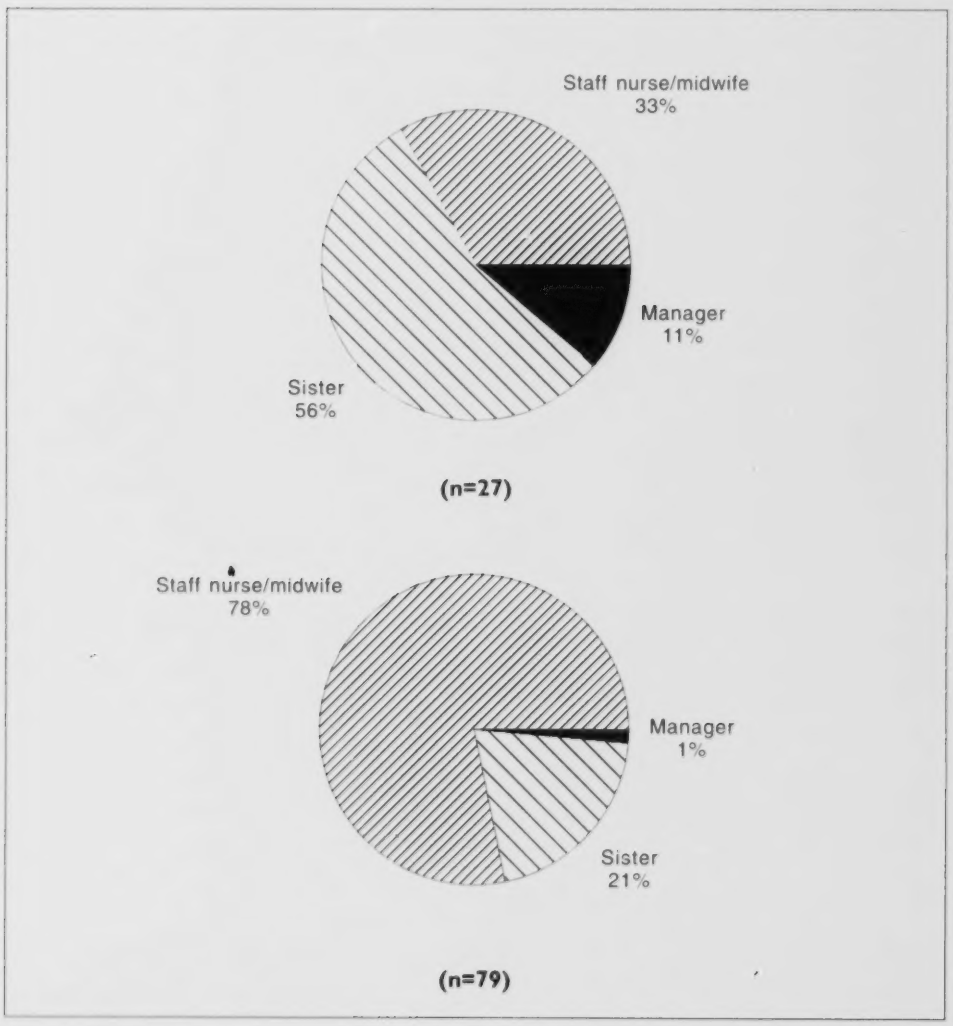

Figure 5: Comparison of position and title of nurses undertaking the ANNP programme and other nurses working in the same units

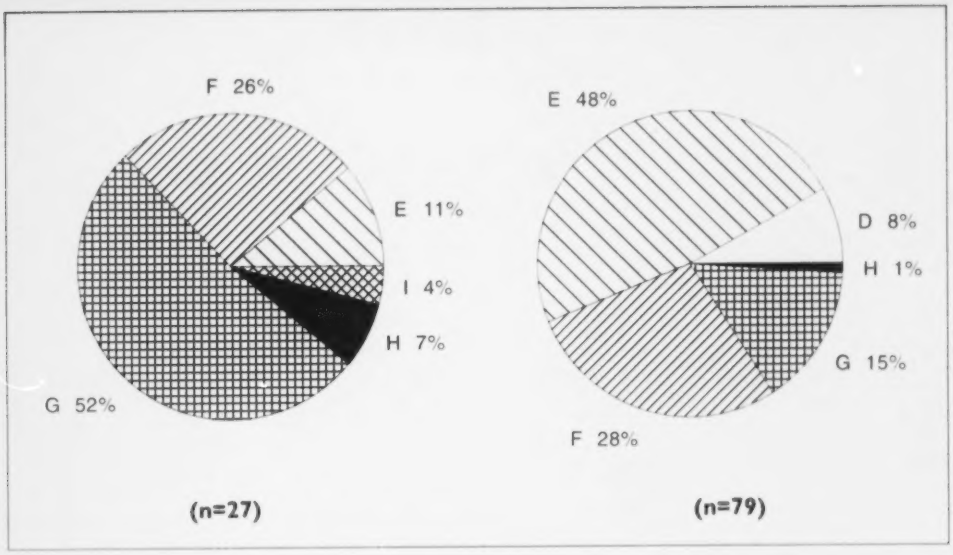

Figure 6: Comparison of grades of nurses undertaking the ANNP programme and other nurses working in the same units

Those selected for the programme were clearly experienced nurses who had been working in neonatal care for some time. The mean age at which they entered neonatal nursing was 26.4 years, and the time spent in neonatal care before starting the programme ranged from 4-18 years (mean 8.7). They had each worked in between one and eight neonatal units (mean 2.9). The time these nurses had spent nursing in the unit that had sent them on the programme ranged from a few months to 11 years; one nurse had been specifically employed in a unit with the aim of shortly taking up a place on the programme, but otherwise those starting the programme had been employed on average for six years before doing so.

Details of the level of general education of the 27 nurses in the first three intakes were collected. A total of 85% had GCSE O-levels or the equivalent, 22% had GCSE A-levels or the equivalent, and though some had other qualifications, only one student had a degree. Data on the nursing and midwifery qualifications of the ANNPs and other nurses are shown in Figure 7. Generally the pattern of qualifications is similar, though, as expected, among those planning to become ANNPs there was a higher proportion of nurses with the ENB course 405 post-registration qualification in neonatal nursing.

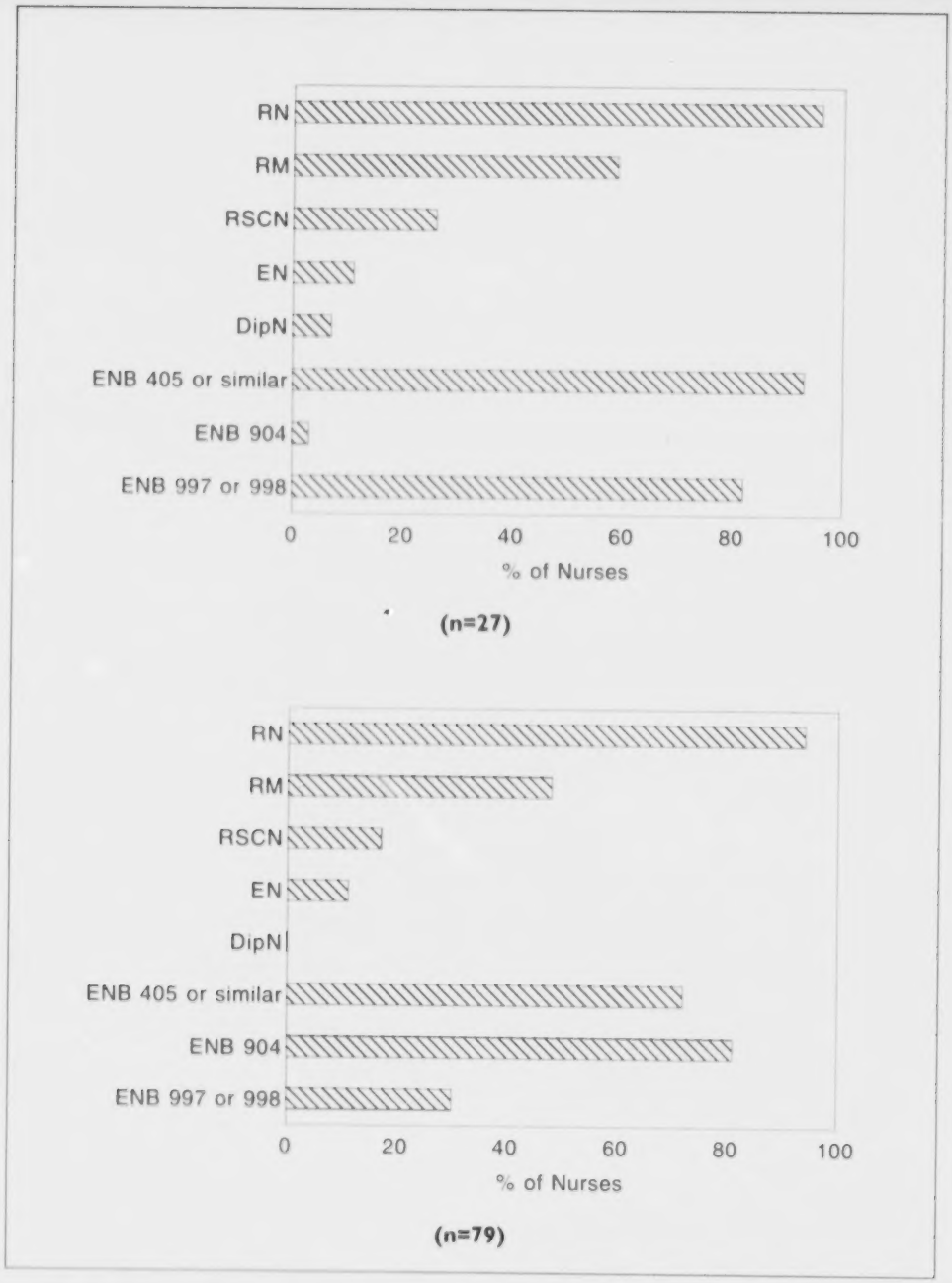

Figure 7: Comparison of qualifications of nurses undertaking the ANNP programme and other nurses working in the same units

Applications and selection are likely to differ depending on the criteria and size of the catchment area. The fourth intake of students for the programme, in 1994, included nurses from many parts of the country, and has a slightly higher proportion with degrees and diplomas than previously. They are also on average, slightly younger, but with slightly more experience in neonatal nursing. With experience, selection criteria are gradually changing, over time, as the pool from which possible applicants can be selected is enlarged.

Prior to undertaking the programme, the nursing responsibilities of the first 27 students were as shown in Table 4. Other than slightly greater involvement in unit management, which is expected of more senior staff, there were no differences in the other general areas of responsibility between them and the other nurses in their units.

Area of Responsibility	ANNPs (n=27)	Other Nurses (n=79)
Nursing Care	100 %	99 %
Clinical Teaching	48 %	47 %
Unit Management	59 %	47 %

Table 4: Comparison of areas of responsibility of ANNPs before undertaking the programme and other nurses working in the same units

4.2 What are nurses qualified as ANNPs expected to do?

The consultants responsible for neonatal care in the 10 units were asked about what was current practice for the qualified ANNP or ANNPs working in the unit. As Figure 8 shows there was considerable agreement about the practical constituents of the role as the clinicians saw it. Most expected ANNPs to decide on patient admission, but not to accept outside referrals, to examine newborns on the postnatal ward and to carry out discharge examinations on the babies in the neonatal unit, but not to see patients at follow-up clinic. They are expected to provide emergency care, carry out investigations, prescribe in accordance with guidelines and teach junior doctors as well as nurses. Only half of the clinicians wished their ANNPs to take a patient case-load, very few to certify death and none to conduct a medical ward round.

Decide on Patient Admission	83 %	**Admission and Discharge**
Accept Outside Referrals	17 %	
Examine Newborns on Postnatal Ward	75 %	**Examining Patients**
Carry Out Discharge Examinations	75 %	
See Patients at Follow-Up Clinic	20 %	
Be On-Call for Delivery Suite	92 %	**Emergency Care**
Responsible for Resuscitation at Delivery	92 %	
Take Charge of Emergency Transfer	83 %	
Order X-rays	83 %	**Investigations**
Order other Investigations	83 %	**Prescribing**
Prescribe Infusion Fluids	92 %	
Prescribe Medication	83 %	
Take a Case-load	50 %	**Conventional Medical Activities**
Present Cases on a Ward Round	100 %	
Conduct a Ward Round	0 %	
Certify Death	17 %	
Teach Junior Doctors	92 %	**Teaching**
Teach Nurses	100 %	
Participate in Audit	75 %	**Monitoring Activity**

Figure 8: Unit policies on what is expected of ANNPs (n=12 clinicians)

Clinicians involved in neonatal care in the participating units were also asked to explain their units' policy on specific technical aspects of the role of the ANNP (Table 5). The policy on different elements of clinical practice are shown for different types of staff, consisting of experienced nurses, nurses with the ENB 405 qualification, SHOs, registrars and others (phlebotomists in this instance). From the variable numbers it seems that while there is general agreement on many technical aspects of care, there are divergences of opinion and policy. This diversity of policy, and presumably practice, means there is a less than clear demarcation line between the tasks carried out by ANNPs and other nurses. Differences between consultants, and the extent to which 'expanded' role developments have taken place in some units are probably contributing to this variability. The tasks where there was a consensus about ANNPs participating and other nurses not doing so were taking blood by arterial stabs, calculating and ordering total parenteral nutrition (TPN), inserting an umbilical arterial catheter (UAC) or a chest drain and performing a lumbar puncture.

Elements of Clinical Practice	Exp Nurse	405 Nurse	ANNP	SHO	REG	Other
Take blood by venepuncture	1	2	9	9	10	
Take blood by arterial stab			10	9	10	
Withdraw blood/arterial catheter (2 N/A)	3	6	10	9	10	
Withdraw blood/venous catheter	2	5	8	7	8	
Administer IV antibiotics	10	10	10	10	10	
Administer IV other drugs	7	8	10	9	10	
Calculate and order TPN (1 N/A)			7	8	7	2 Ph
Insert IV cannula		2	10	9	10	
Insert UAC			10	9	9	
Insert chest drain			8	7	10	
Insert ET tube		2	10	10	10	
Perform lumbar puncture			10	8	10	
Remove IV cannula	8	10	10	10	10	
Remove UAC	1	4	10	9	10	
Remove chest drain	1	2	9	10	10	
Remove ET tube	6	7	10	10	10	
Set up and use centrifuge (3 N/A)	1	2	7	7	7	
Set up and use bilirubinometer (4 N/A)	1	3	6	6	5	
Set up and use BGA (1 N/A)	2	8	9	9	9	
Set up and use arterial BP monitoring	8	9	9	3	4	
Carry out ultrasound examinations			1	1	8	

(Ph = Phlebotomists)

Table 5: Policy on the changing role of the nurses in the units studied, showing the different staff who may be involved in various aspects of practice (n=10 units, source clinicians)

All the clinicians indicated that they were committed to the ANNP role, however, their understanding of this varied. At the time of the study, many wanted the ANNPs to act as SHO substitutes for all or part of the time. In the context of junior doctor shortages and a pressure to reduce the hours of junior medical staff, it is not surprising that this programme and the advanced practitioners emerging from it are not seen by the senior medical staff as part of a primarily nursing development, though a broader view was taken by at least some of the clinicians involved (see Chapter 6).

4.3 Accountability

The ANNPs were asked to whom they were accountable on a day-to-day basis. Between one and three individuals were mentioned:

> *'I am responsible clinically to the consultant, managerially to the clinical services manager and professionally to the director of nursing.'*

> *'I am responsible to the consultant and registrar when working as an ANNP and to the clinical nurse manager when working as a nurse.'*

Six ANNPs mentioned one individual; five mentioned two and three referred to three individuals. In view of the diversity of working arrangements, it is not surprising that the details in Table 6 show inter-unit variation in this respect.

ANNP Accountable to:	Number of ANNPs (n=15)
Consultant Paediatrician/Neonatologist	11
Clinical Nurse Manager	9
Paediatric Registrar	2
Clinical Nurse Specialist	1
Paediatric Manager	1
Director of Paediatric Nursing	1
Director of Nursing	2

Table 6: Individuals to whom ANNPs are accountable

4.4 What are the nurses qualified as ANNPs doing?

Data of several different types were collected with the aim of assessing how the ANNP role was organised in practice and how qualified ANNPs functioned. Using the ANNP questionnaires, the diary checklists and cross-referencing with the information from the clinicians and managers responsible for the ANNPs' units, a picture of ANNP duties, clinical practice and areas of activity has been compiled.

At the time of collecting the bulk of the study data, eight of the 16 qualified ANNPs were employed in that position, and a further two were jointly working as managers and ANNPs; the remainder were employed as sisters and staff nurses. The ANNPs were asked about their duties, the clinicians about unit policy concerning the ANNP role and the nurse managers about job descriptions in the 10 units participating in the programme.

The constituents of the role as practised by nurses qualified as ANNPs at the time of the study are shown in Figure 9. A high proportion or all of the ANNPs had been involved in a number of aspects: deciding on admission to the neonatal unit; examining newborns on the

postnatal ward, carrying out discharge examinations of neonatal unit babies and being responsible for emergency care at delivery and during transfer. They had also ordered X-rays and other investigations, presented cases on ward rounds, and taught nurses and junior doctors. Fewer ANNPs had accepted outside referrals, prescribed medication, been involved in protocol development, audit and research, and while 60% said they had conducted a ward round, it was unclear to what type of round they were referring. Seeing patients at a follow-up clinic and certifying death were among the most infrequent activities undertaken.

Decide on Patient Admission	100 %	**Admission and Discharge**
Accept Outside Referrals	60 %	
Plan Discharges	93 %	
Examine Newborns on Postnatal Ward	93 %	**Examining Patients**
Carry Out Discharge Examinations	87 %	
See Patients at Follow-Up Clinic	7 %	
Be On-Call for Delivery Suite	87 %	**Emergency Care**
Responsible for Resuscitation at Delivery	87 %	
Take Charge of Emergency Transfer	80 %	
Order X-rays	100 %	**Investigations**
Order other Investigations	100 %	**Prescribing**
Prescribe Infusion Fluids	73 %	
Prescribe Medication	67 %	
Take a Case-load	27 %	**Conventional Medical Activities**
Present Cases on a Ward Round	93 %	
Conduct a Ward Round	60 %	
Certify Death	7 %	
Teach Junior Doctors	80 %	**Teaching**
Teach Nurses	100 %	
Routine Nursing Care	80 %	**Nursing Care**
Holistic Family Care	87 %	
Bereavement Care and Follow-Up	53 %	
Undertake Quality Assurance Activities	27 %	**Quality of Care Standards**
Set Standards of Care	67 %	
Develop and Write Protocols	60 %	
Participate in Audit	60 %	**Research and Monitoring Activity**
Undertake Research	40 %	

Figure 9: Constituents of the role as practised by qualified ANNPs (n=15)

The qualified ANNPs were also asked to indicate which of the duties they had not yet undertaken but which they would like to take on as part of their role in the future. These data are illustrated in Figure 10a-d. All the ANNPs wished to be involved in admission and discharge, but a small number were less sure about accepting outside referrals. Most felt the role should include working in the delivery suite and being responsible for resuscitation and emergency transfer, though a small number disagreed. All the ANNPs were, or said they would like to be, prescribing infusion fluids, and almost all wished to be able to prescribe medication. In some instances the ANNPs referred to the need for countersigning by medical staff and the use of lists of specific items. Parts of the role that may have been seen as more traditional medical activities, like taking a case-load, conducting ward rounds and certifying death were more problematic as far as some of the ANNPs were concerned.

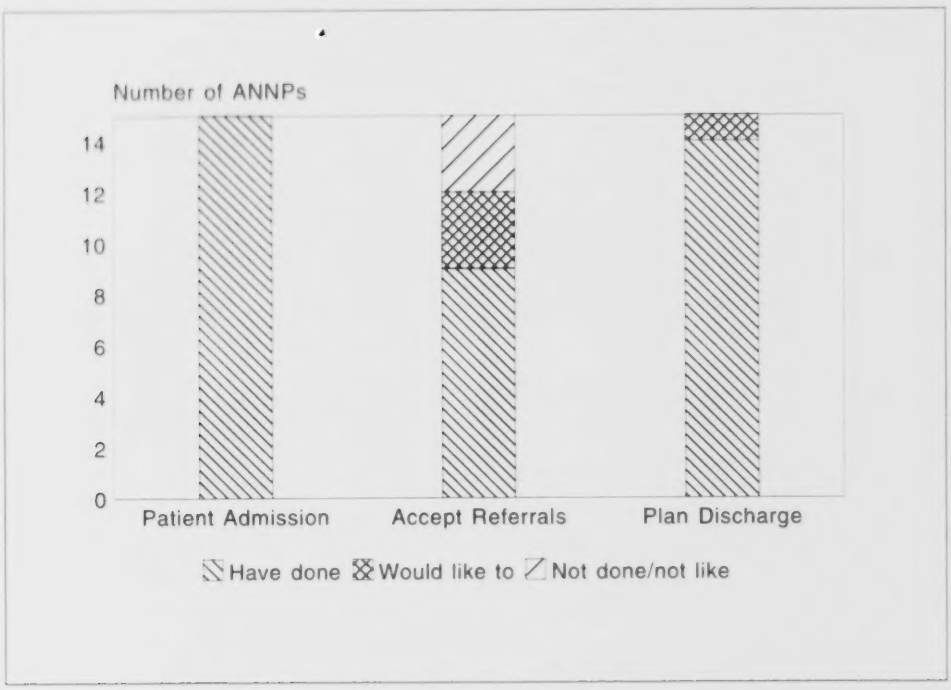

Figure 10a: Constituents of the ANNP role: admission and discharge (n=15)

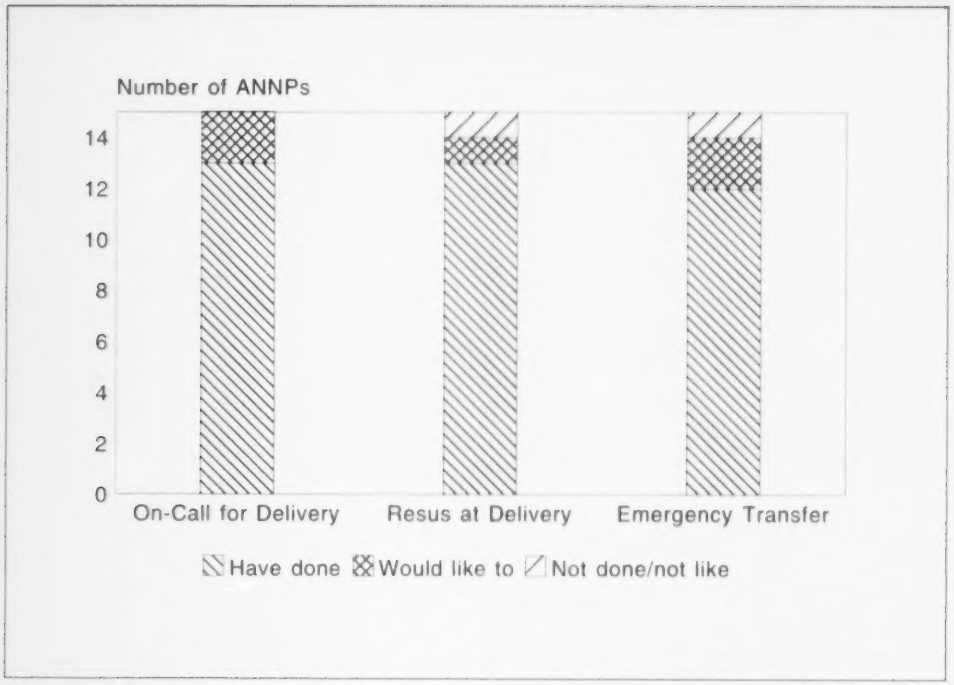

Figure 10b: Constituents of the ANNP role: emergency care (n=15)

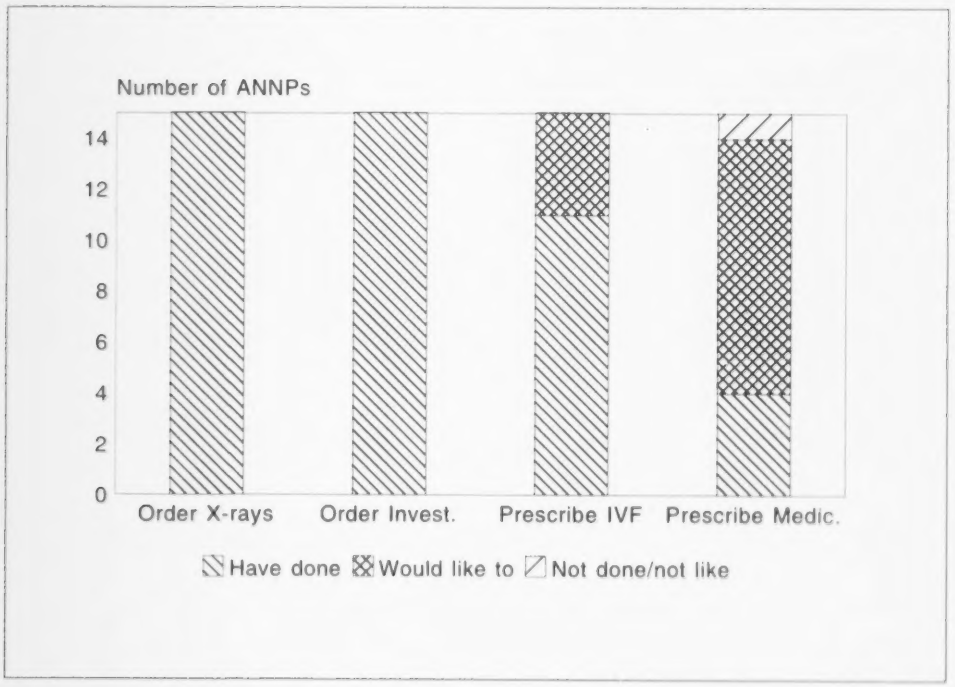

Figure 10c: Constituents of the ANNP role: investigations and prescribing (n=15)

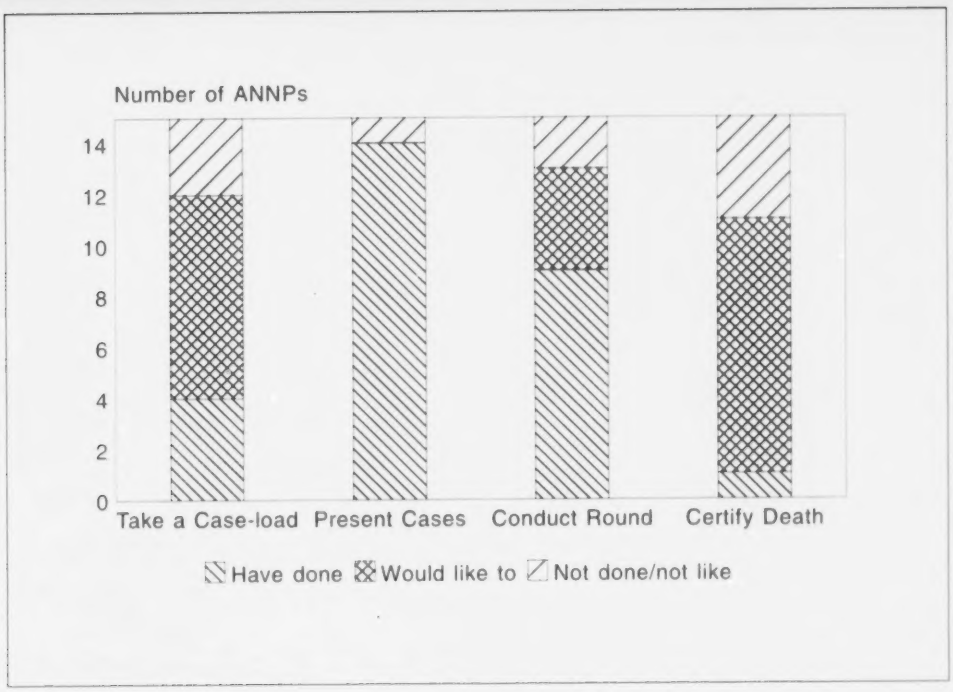

Figure 10d: Constituents of the ANNP role: common medical responsibilities (n=15)

The work situation of the nurses qualified as ANNPs varied both in terms of the post they held and their day-to-day activities. In order to gain a realistic picture of their duties and the way in which they were functioning on a shift-by-shift basis, a diary checklist was used. Each ANNP was asked to complete the information requested on 10 consecutive shifts; data were thus expected on 160 shifts. One ANNP did not return a diary, another was exclusively employed as a nurse at the time and another ANNP only completed eight shifts. Thus a total of 138 shifts were available for analysis.

The modes of working differ between units and between shifts in many instances. The work allocation for the 138 shifts is shown in Figure 11; ANNPs were working as SHOs for a relatively small proportion of shifts (12%), and were allocated nursing only duties for a similar proportion. In the largest proportion of shifts they were allocated to carry out a wide range of technical tasks for all babies requiring them in the unit; for only a third of the shifts were they allocated to give both nursing and medical care (advanced neonatal nursing practice) to a smaller number of babies. More than half of the qualified ANNPs and almost all those actually employed as ANNPs are now known to be working SHO shifts all or part of the time and the shift data returned support this.

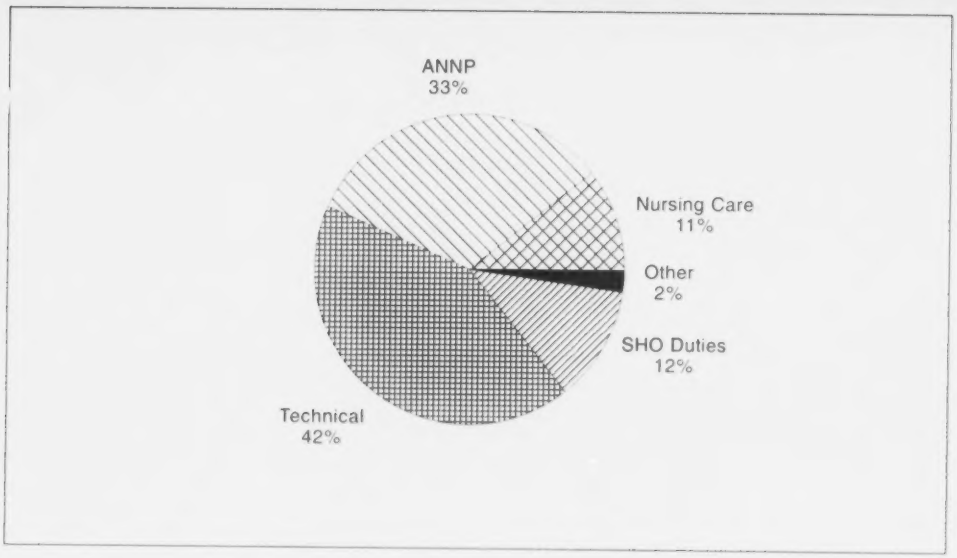

Figure 11: ANNP work allocation (n=138 diary shifts)

The duration of the shifts recorded ranged from five to 16 hours (mean 9.4). At the time of the study some ANNPs were not expected to work at night, though they may have been working long day shifts as part of their job.

Only four of the qualified ANNPs included night shifts in their diaries. The shift data were also examined to see which activities were undertaken by the qualified ANNPs at some time during the 10 shifts. Figure 12 shows that the ANNPs attended delivery suite during 42% of the shifts. They had been involved in teaching nurses at some time during 67% of the shifts and junior doctors during 35%. Unit management was also part of their workload on 43% of shifts; this was not just for those employed in a joint management role.

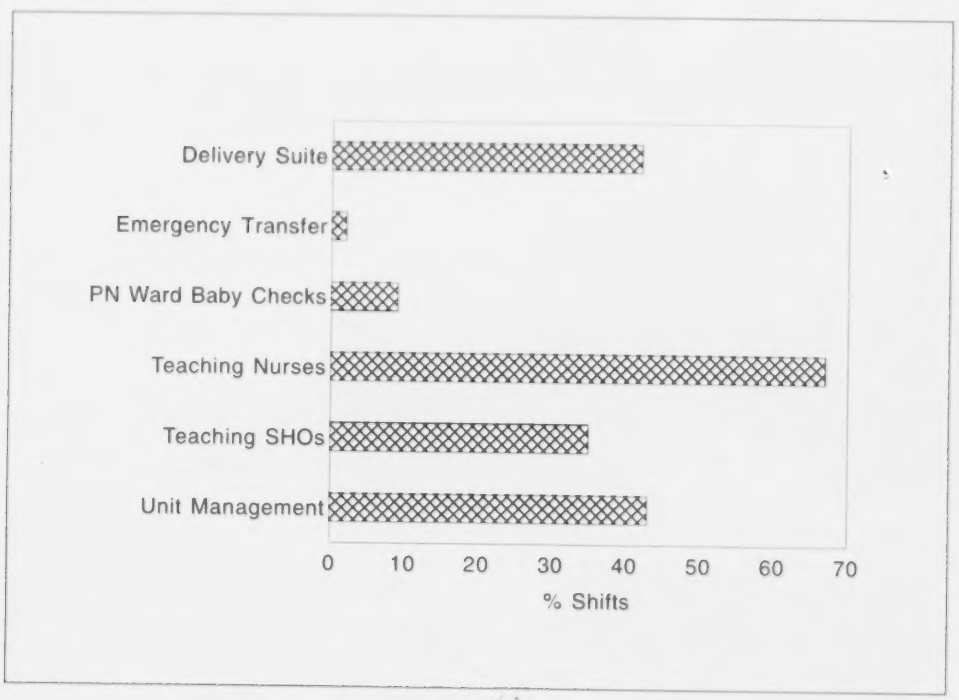

Figure 12: ANNP areas of activity (n=138 diary shifts)

The elements of clinical practice undertaken once or more during the documented shifts are given in Figure 13a-d. The most and least commonly undertaken of the technical and related activities for which the ANNPs had been trained are apparent; blood sampling was commonly recorded, most often by venepuncture and via an arterial catheter. The use of a venous catheter varies between units and accounts for a lower use here. Use of equipment such as a centrifuge, bilirubinometer and blood gas analyser were common, though not all units had these and in one instance a machine was broken.

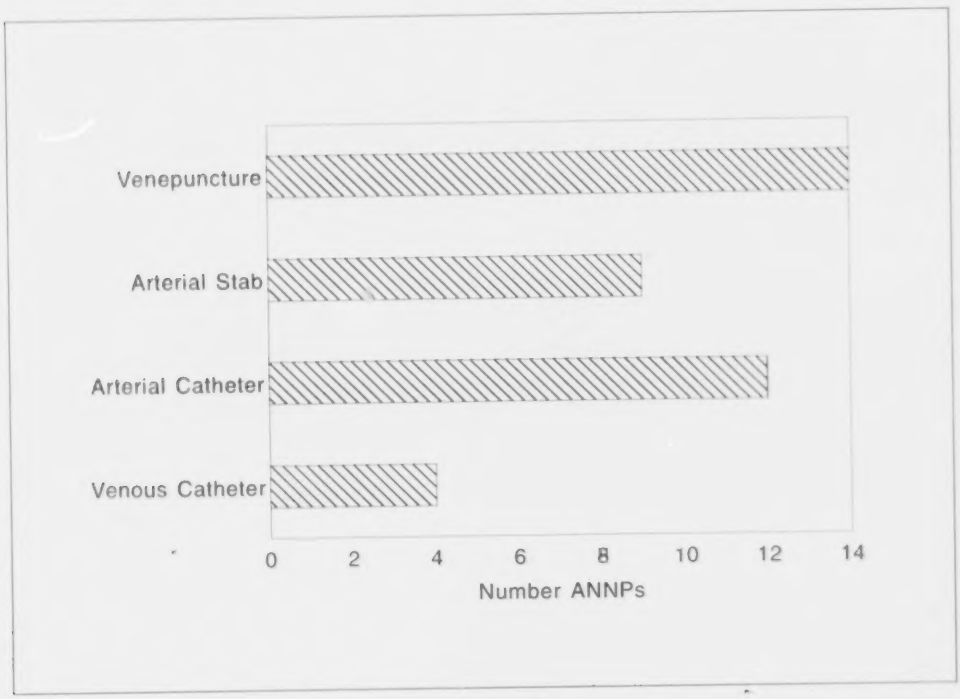

Figure 13a: ANNP blood sampling in the course of 10 shifts

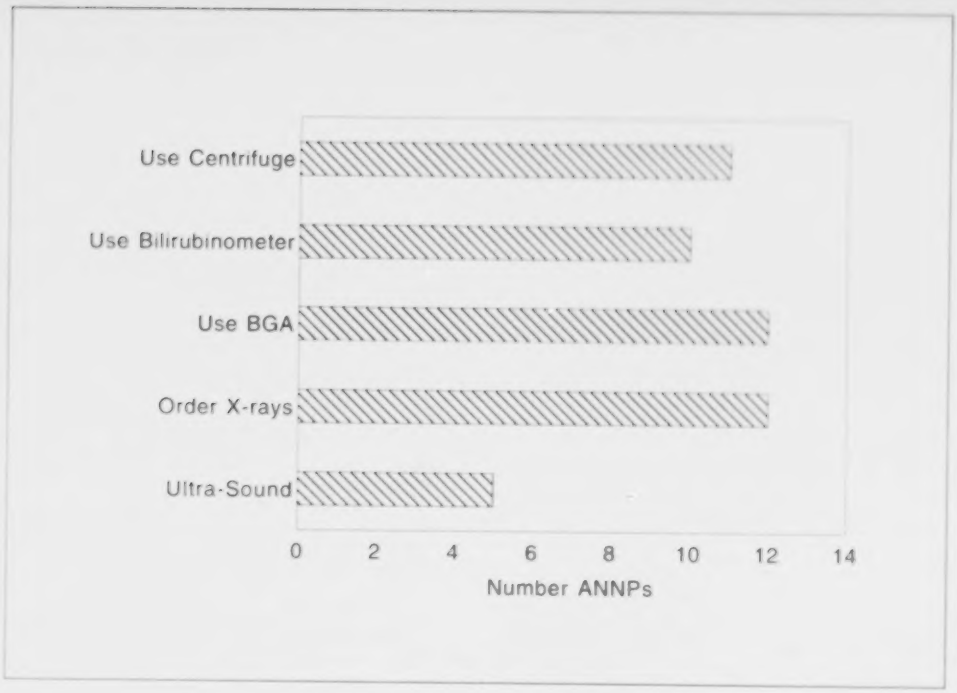

Figure 13b: ANNP investigations in the course of 10 shifts

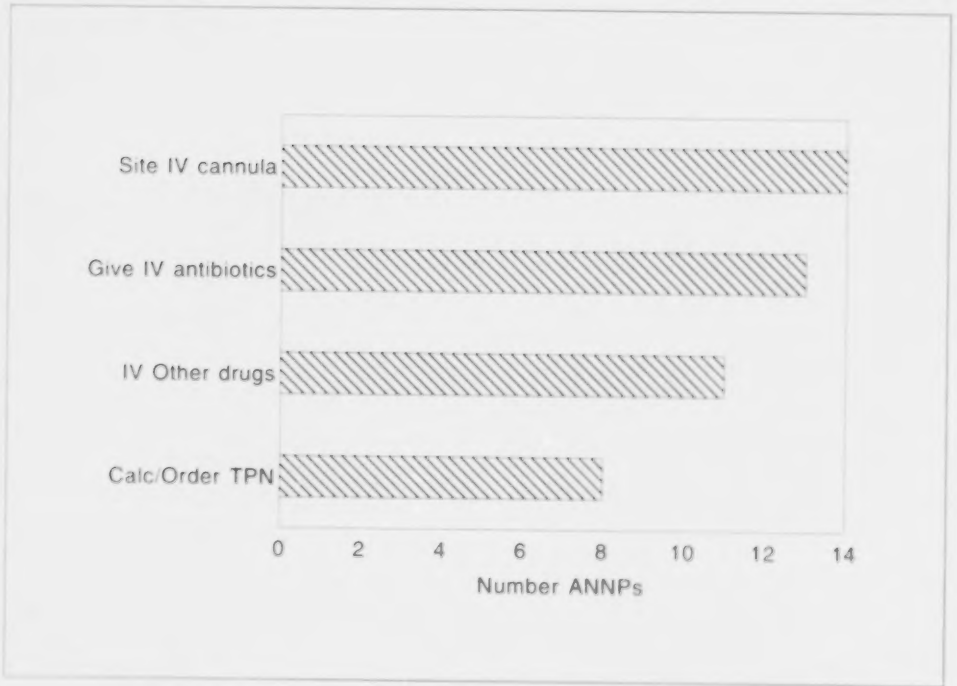

Figure 13c: ANNP fluid and drug administration in the course of 10 shifts

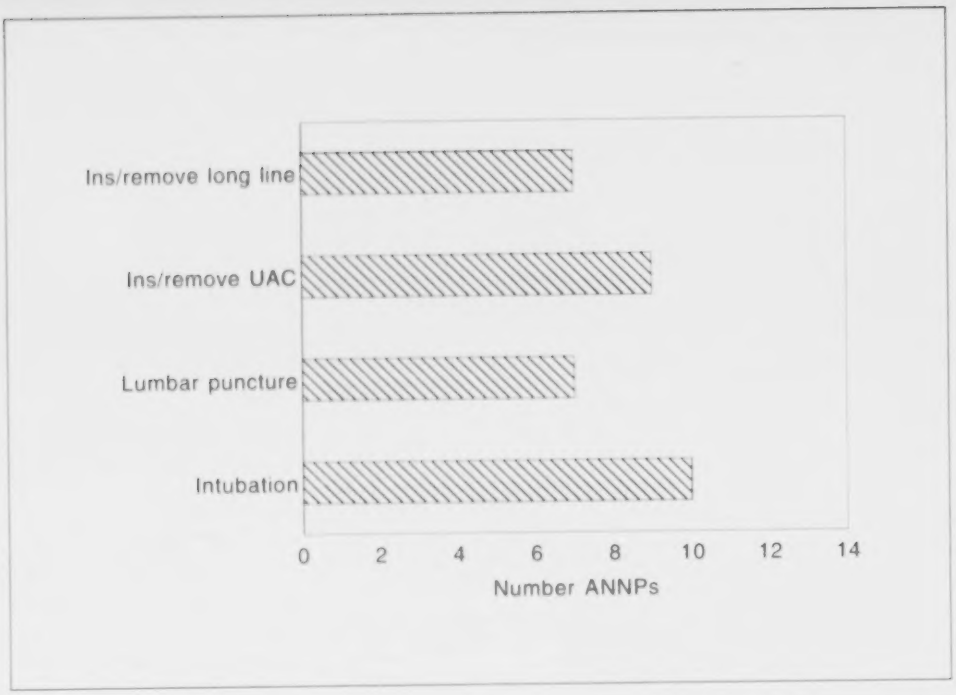

Figure 13d: ANNP invasive procedures in the course of 10 shifts

It was somewhat surprising to see the use of ultrasound listed by five ANNPs, since, according to the clinicians, this was only policy for ANNPs to carry out in one of the 10 study units. However, in the original programme submission document, involvement *'in diagnosing intra-cranial haemorrhages and PVLM'* and interpreting *'the effect of an abnormal scan on the infant's behaviour'* were described as learning outcomes.

All ANNPs had sited an intravenous (IV) cannula, most had given IV antibiotics or other medication and fewer had been responsible for calculating and ordering TPN. At least half had been involved in inserting or removing long lines and UACs, performing lumbar punctures and intubating babies in the neonatal unit or at delivery. Thus from these data it seems that the ANNPs were routinely involved in blood sampling and analysing some of these samples in the unit, in siting IV cannulae and administering IV fluids and drugs. Fewer had been involved in more invasive procedures during the 10 shifts, though in part this was probably due to the lower frequency of such procedures being required, as well as medical staff undertaking some of these.

In order to illustrate both the nature of the tasks undertaken by ANNPs and the way that the work was organised, some diary examples are summarised in Table 7a-d. For each of four practitioners the content of five consecutive shifts is shown, as is the type of work allocated, the length of each shift and whether it was a day or night shift. The frequency, that is the number of times a specific procedure was carried out, is also given.

	SHIFT				
	1	2	3	4	5
Type (day or night)	D	D	D	N	N
Duration (hours)	13	13	8	13	13
Duties #	**Tech**	**Tech**	**Tech**	**Tech**	**Tech**
Took blood by venepuncture	10	4		3	1
Took blood by arterial stab	2			1	
Withdrew blood from arterial catheter	3			1	
Sited IV cannula	3	1			
Administered IV antibiotics					
Administered IV other drugs					1
Calculate and order TPN	2	2			
Performed lumbar puncture					
Inserted or removed UAC					
Inserted or removed long line					
Ordered X-rays	1	2			
Ultrasound examination of baby					
Intubated a baby					
# Fully employed on SHO rota					
Was involved in					
Resuscitation delivery suite/theatre	*	*	*	*	*
Flying squad transfer					
Teaching nurses	*	*			*
Teaching junior medical staff					
Unit management					
Postnatal ward examinations			* 18		
Admission to NNU	*	*			

Key

Shifts: D = Day shift N = Night shift

Duties: Tech = Technical ANNP duties only
SHO = SHO Rota

Table 7a: The nature of tasks undertaken by ANNPs (example 1)

The ANNP in example 1 was fully employed working mostly long shifts on the SHO rota and was on call for and went to delivery suite or theatre on all the shifts shown. When in the unit she carried out a wide range of technical procedures on any or all of the unit babies requiring them. One of the five shifts shown was almost entirely spent on the postnatal ward carrying out examinations of normal newborns.

	SHIFT				
	1	2	3	4	5
Type (day or night)	D	D	N	N	N
Duration (hours)	10	10	11	11	11
Duties	**SHO**	**SHO**	**ANNP**	**ANNP**	**ANNP**
Took blood by venepuncture	10	18	3	10	2
Took blood by arterial stab	7	7		3	2
Withdrew blood from arterial catheter	6	12		2	2
Sited IV cannula	4	3		2	2
Administered IV antibiotics	0	1	1	4	3
Administered IV other drugs	1			2	
Calculate and order TPN	2	2			
Performed lumbar puncture					
Inserted or removed UAC					
Inserted or removed long line		1			
Ordered X-rays	4	3		1	
Ultrasound examination of baby					
Intubated a baby		2			
Was involved in					
Resuscitation delivery suite/theatre	*	*			
Flying squad transfer					
Teaching nurses	*	*	*	*	*
Teaching junior medical staff	*	*	*		*
Unit management		*	*	*	*
Postnatal ward examinations					
Admission to NNU					

Key

Shifts: D = Day shift N = Night shift

Duties: SHO = SHO Rota
ANNP = Technical and nursing tasks for a group of babies

Table 7b: The nature of tasks undertaken by ANNPs (example 2)

The ANNP in example 2 was at times working on the SHO rota, and as such attended delivery suite or theatre. On other shifts she worked in a different way carrying out both nursing and technical medical care for a smaller number of babies. This ANNP was also quite involved in teaching both junior doctors and nurses, as well as undertaking unit management duties.

	SHIFT				
	1	2	3	4	5
Type (day or night)	D	D	D	D	D
Duration (hours)	10	9	8	9	11
Duties	**Tech**	**ANNP**	**SHO**	**Tech**	**SHO**
Took blood by venepuncture	6	2	2	1	2
Took blood by arterial stab	1				
Withdrew blood from arterial catheter	3	2		6	1
Sited IV cannula	2	1		1	2
Administered IV antibiotics	1	2	1	2	1
Administered IV other drugs	1	1		4	0
Calculate and order TPN					
Performed lumbar puncture					
Inserted or removed UAC	1	1			
Inserted or removed long line					
Ordered X-rays	2			2	1
Ultrasound examination of baby					
Intubated a baby					
Was involved in					
Resuscitation delivery suite/theatre	*		*		*
Flying squad transfer					
Teaching nurses	*	*	*	*	*
Teaching junior medical staff	*		*		
Unit management	*	*		*	
Postnatal ward examinations			*		*
Admission to NNU	*			*	*

Key

Shifts: D = Day shift N = Night shift

Duties: Tech = Technical ANNP duties only
SHO = SHO Rota
ANNP = Technical and nursing tasks for a group of babies

Table 7c: The nature of tasks undertaken by ANNPs (example 3)

In example 3, the ANNP's work was organised in three different ways in the programme of five shifts, and these changed from day to day. For two shifts she functioned as an SHO replacement in the unit, on delivery suite and on the postnatal ward. For another two shifts she worked as an ANNP carrying out technical tasks for all the unit babies requiring them, and for only one of the five shifts did she carry out both the technical and nursing care for a small number of allocated babies in intensive care. Teaching nurses and junior medical staff and unit management was also recorded for some or all of these shifts.

	SHIFT				
	1	2	3	4	5
Type (day or night)	D	D	D	D	D
Duration (hours)	9.5	7.5	8.5	9.5	6.5
Duties	**ANNP**	**ANNP**	**ANNP**	**ANNP**	**ANNP**
Took blood by venepuncture	5	3	4	1	1
Took blood by arterial stab	2		3		
Withdrew blood from arterial catheter	2	6	3	3	3
Sited IV cannula	4	1	1	1	1
Administered IV antibiotics	4	4	3	3	3
Administered IV other drugs	3	3	2	3	1
Calculate and order TPN		1	1	1	1
Performed lumbar puncture					
Inserted or removed UAC					
Inserted or removed long line					
Ordered X-rays	1	1			
Ultrasound examination of baby	1				
Intubated a baby					
Was involved in					
Resuscitation delivery suite/theatre	*				
Flying squad transfer					
Teaching nurses	*	*	*	*	*
Teaching junior medical staff			*	*	*
Unit management	*	*	*	*	*
Postnatal ward examinations					
Admission to NNU					

Key

Shifts: D = Day shift N = Night shift

Duties: ANNP = Technical and nursing tasks for a group of babies

Table 7d: The nature of tasks undertaken by ANNPs (example 4)

In example 4, where the ANNP was responsible for technical and nursing care for intensive care or high dependency babies on all the shifts illustrated, it is also clear that she was involved in teaching and management duties for much of the time.

The examples discussed above, and analyses of the diary and questionnaire data have together enabled us to construct a picture of what ANNPs in the different hospitals were doing at the time of the study. They had moved into the area of advanced technical skills and much of what they did overlapped with the work of junior medical staff. The clinical skills education aspect of the role appeared to be well established, both with regard to teaching nurses and SHOs. For the two ANNPs working as unit managers in addition to their ANNP duties, management was formally part of their job, whereas some of the other ANNPs, as senior nurses, were at times expected to take on some management duties or be 'in charge' of the shift.

4.5 Prescribing

The issue of prescribing was raised by ANNPs, clinicians and others involved in the programme. The unit managers were asked about the policy with regard to prescribing by their ANNPs. A range of responses and practices were described as shown in Table 8.

Where countersigning was required, its timing could be variable, and perceptions of who was responsible for ensuring this took place were not uniform. Discontinuation of drug therapies and alteration in dosage and delivery rates was another area in which ANNPs were involved that required clarification. From the information provided by unit managers and direct observation it appeared that the prescribing issue for the ANNPs in the study had a considerably higher profile than that for nurses working in the Department of Health pilot prescribing sites (Morris, 1994). This was particularly so for ANNPs when working on the SHO rota, covering SHO on-call duties and in carrying out emergency care in the delivery room and during emergency transfers.

Examples of Prescribing Policy

Example 1.	ANNP not allowed to prescribe, but in an "emergency" situation, can write up a drug e.g. human albumen, if a medical practitioner is not physically present at the time. The drug has to be countersigned by a doctor as soon as possible.
Example 2.	Standing orders are used for some IV fluids and drugs.
Example 3.	Not prescribing drugs at present. Can prescribe IV fluids and additives and human albumen solution.
Example 4.	ANNP prescribes drugs and fluids, providing they are countersigned by a medical practitioner within 24 hours.
Example 5.	There is no policy as the ANNP does not prescribe.

Table 8: Prescribing policies in the units with ANNPs

4.6 How do ANNPs see the role?

The perceptions of the role and the work the ANNPs were undertaking were investigated using a variety of questions in different formats.

Qualified ANNPs and students nearing the end of the programme were asked how they saw the expanding role and neonatal nurse practitioner developments in general (Figure 14). The most common perception was that this was an appropriate professional development that could promote optimal patient care and improve outcome; at the same time almost all saw it as a challenging career option. Only half (48%) saw it as a way of improving morale and fewer (41%) saw it as a means of reducing the workload of junior doctors. However, when asked about changes brought about by having an ANNP working in their unit, 11 of the 15 ANNPs (73%) mentioned the benefits for junior doctors.

In fact all the changes listed by the ANNPs were positive. In addition to reduced stress and greater support and education for junior medical staff, many ANNPs (12) also listed better patient care from both a 'holistic' or 'almost holistic' perspective and in terms of timing and appropriateness of specific procedures. Thus there was 'better coordination of care and procedures', 'prompt treatment e.g. siting IV cannulae', it was 'less traumatic for babies' when bloods are required and 'improved resuscitation of babies when the ANNP is present taking more care of temperature control'.

In general, communication was also thought to have improved within the neonatal unit and with other departments. There was 'better communication between the staff on the unit, the labour and postnatal wards', 'improved relationships' with the maternity floor, the labour ward staff, obstetric teams and the anaesthetists.

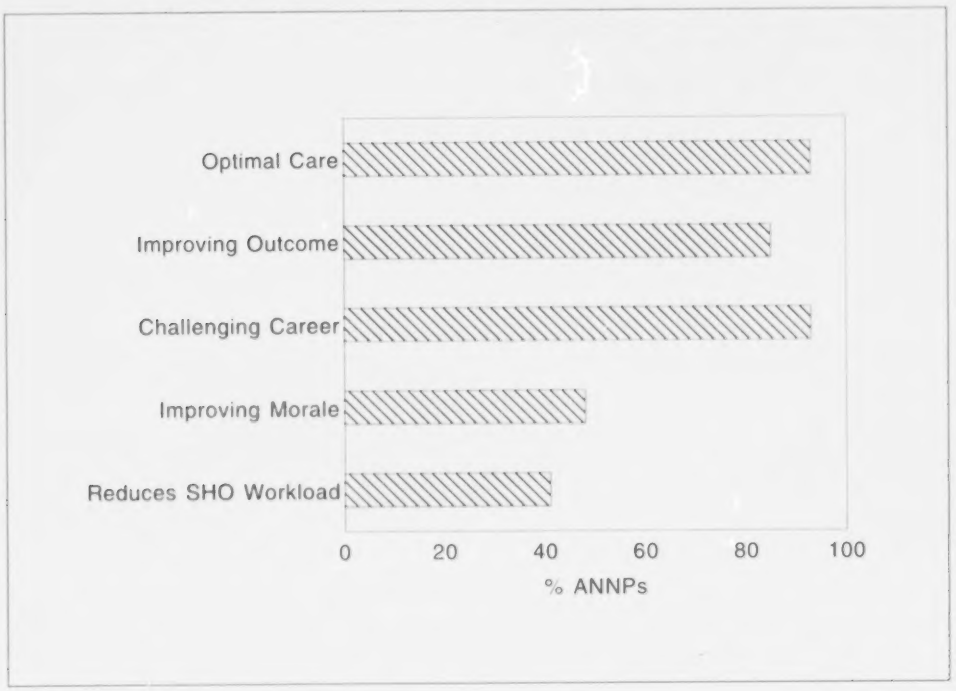

Figure 14: ANNPs' perception of the expanding role and practitioner developments (n=27)

All these changes in care and support from and for other professional groups were put forward as following on from the introduction of one or more nurses qualified as a neonatal nurse practitioner. From the individual ANNPs' own perspective it was expected that the benefits for those concerned would show up in increased job satisfaction and a changed attitude to working in neonatal care. Individual comments on what was best about their work since doing the programme appear to bear this out:

> *'Being responsible for myself and my work as opposed to being responsible as a sister for everyone and everything that happens on the unit.'*
>
> *'Extending my role further than I was previously able to do as a neonatal sister – I enjoyed my job prior to the course – but now I find work as an ANNP is more challenging and interesting.'*
>
> *'Being able to work on my own and make informed clinical decisions. Not feeling so frustrated.'*

Using an adjective checklist, the qualified ANNPs were asked how they felt at the end of a shift since qualifying. The most frequently used adjectives describing how they usually or quite often felt at this time are shown in Figure 15. Most felt very positive, though exhausted and more than two-thirds felt satisfied and happy. However, these proportions are similar to those found with a nationally recruited sample of nurses working in neonatal care at all levels (Redshaw, Harris and Ingram, 1995), and so does not bear out the view that the ANNP experience is necessarily more positive than that of other nurses, at least at this stage in their careers.

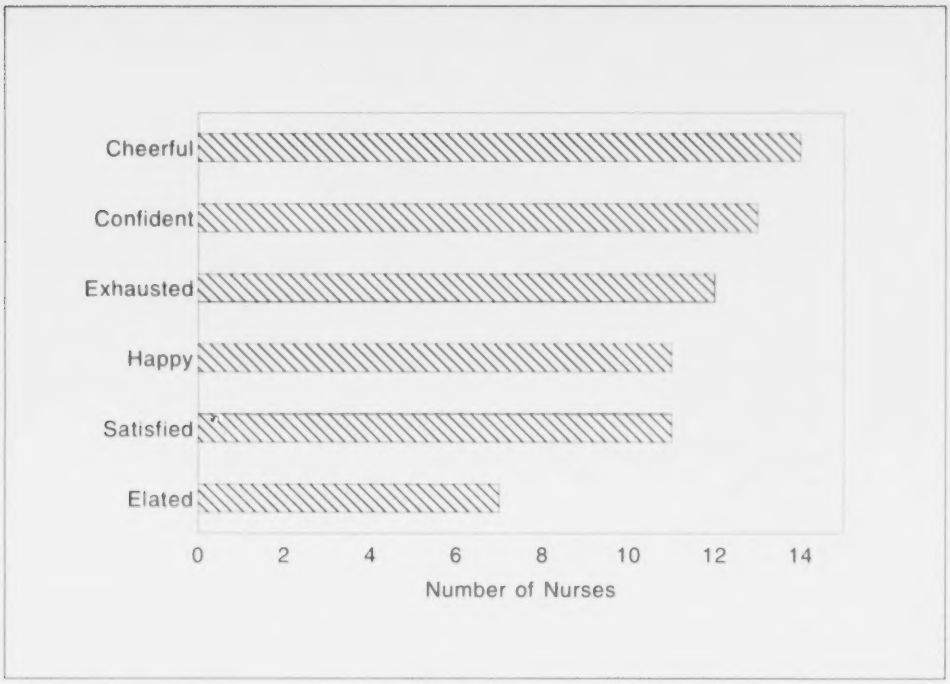

Figure 15: How ANNPs' feel at the end of a shift (n=15)

However, it was expected that as a function of their changing role and activities, ANNP perceptions of their units as places to work would be different from those of their nurse colleagues. Thus the qualified ANNPs and students, and their nursing colleagues, were given an adjective checklist containing equal numbers of positive and negative terms (Figure 16a-b). While nurses in both groups used the word 'challenging' to describe the working environment, proportionately more of the ANNPs did so. More also described it as 'supportive', 'stimulating' and 'exciting'. A similarly large proportion of both groups described the working environment as 'frustrating' and while both groups used 'pressurised', this was more common among the other nurses than the ANNPs. On the whole more positive and fewer negative adjectives were used by the ANNPs, and while they may have been wishing to present a positive view, their comments suggest that they really may have been enjoying their jobs more than previously.

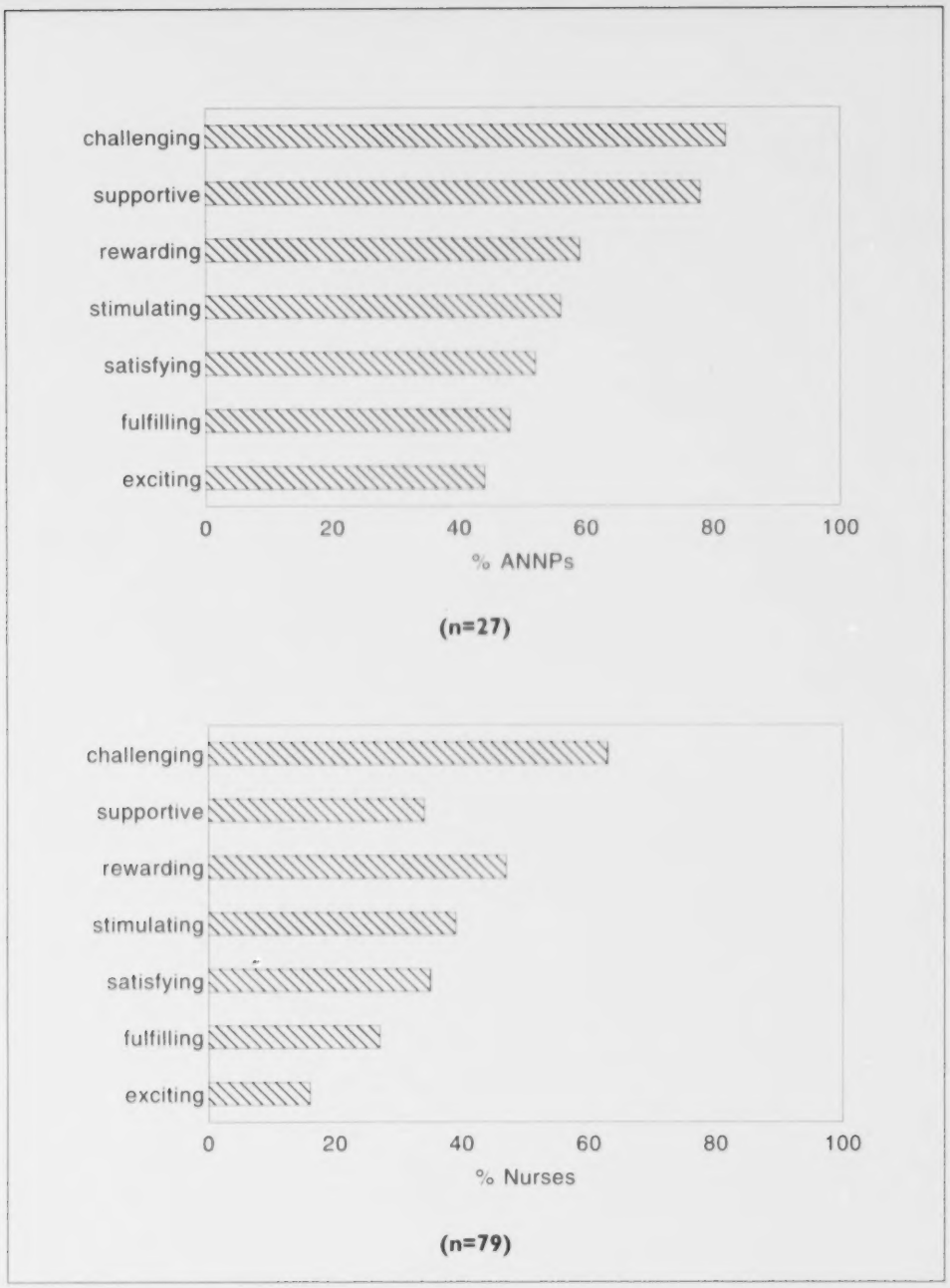

Figure 16a: ANNPs' and other nurses' perceptions of their units as places to work (positive adjectives)

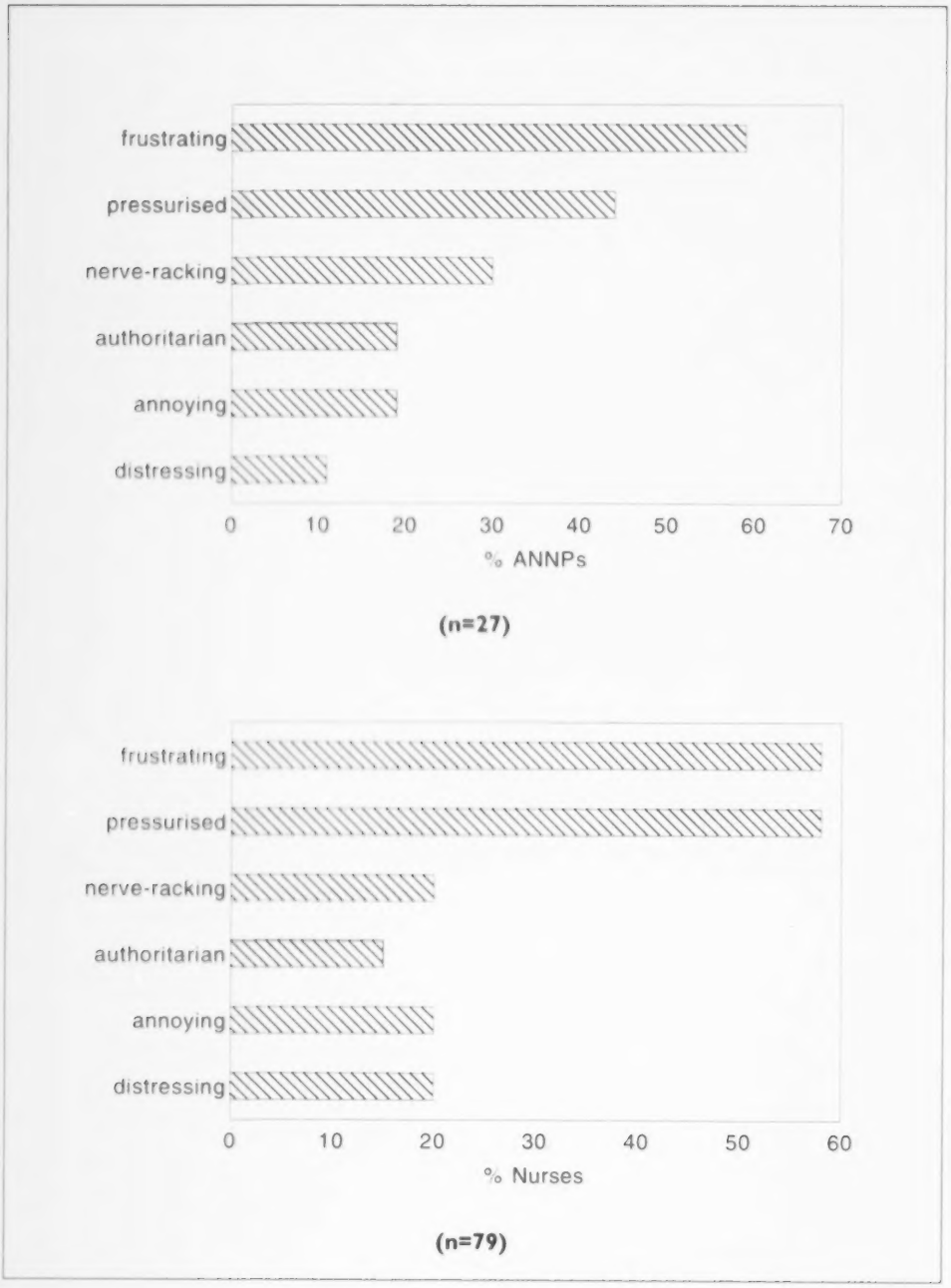

Figure 16b: ANNPs' and other nurses' perceptions of their units as places to work (negative adjectives)

4.7 The benefits and disadvantages

When asked about the benefits of the ANNP development generally, a mixture of points were often made by the students and practitioners. The qualified ANNPs largely focused on the availability of highly skilled care, improvements in the quality of care and providing care for parents. Some mentioned the positive effect of combining nursing and medical roles and the active role of ANNPs in supporting junior doctors and nursing staff. The benefits elicited included the following:

'Improved care for infants, teaching and support for SHOs and nurses and stability within the unit.'

'Unique role combining medical and nursing talents which stay on the unit, unlike the change of SHOs every six months.'

'Standards of care have improved. There is recognition of a family unit's needs as a whole rather than just a baby and a set of parents.'

'Continuity and stability of care. Commitment and motivation to continue that care.'

'Procedures can be carried out quickly and more efficiently. Improved all round care. Nursing and medical staff feel better supported.'

Specific benefits mentioned for their unit again included the high level of skill available, continuity of care, and improved junior doctor and nurse education.

'Access to a person who can assess and implement both medical and nursing care. Therefore no delay in treatment.'

'A teaching programme was set up for SHOs. Continuity of medical cover by NNPs during the change-over providing stability.'

'Continuity of care. ANNPs are permanent members of staff who are able to contribute nursing and medical skills, especially at times of staff change – both medical and nursing.

'An ANNP is a resource person – improved teaching, more audit and research input.'

The ANNPs also mentioned better communication between the professional groups involved in neonatal care and one described the ANNP as:

'A bridge between two professions that work so closely and yet our learning and understanding are wide apart.'

Ten of the 15 ANNPs reported disadvantages at this point, including the ambiguity of the role, difficulties in establishing and maintaining it, their isolation and the possibility of de-skilling SHOs:

'The great difficulty is in trying to establish this role.'

'Role definition – 'Are you a doctor or a nurse today?'. The roles are seen as very separate.'

'With staff shortages I am sometimes pulled in several directions.'

'At times nursing duties and management have had to be put first – this is important but very frustrating.

'Being on my own.'

'Potential for 'de-skilling' the SHOs even more, by reducing their exposure to NNU.'

Other practical disadvantages included funding problems for their posts and the difficulties with being able to give the technical care babies require but at the same time being unable prescribe the fluids or medication needed for treatment.

4.8 Recent incidents or situations

In addition to asking general questions of the ANNPs about how they saw their role and their work, they were also asked about a recent incident or situation in which their being trained as an ANNP had contributed positively. One of the fifteen did not reply and another was not specific, saying that such situations happened all the time. Among the 13 who did respond, seven described situations involving use of resuscitation skills, while four referred to providing support, backup and teaching for junior medical staff:

> *'When not being actually rostered on duty I happened to be on the unit. The SHO and registrar had gone to a LSCS, a baby self-extubated and I was able to reintubate quickly.'*

> *'The unit was very busy. Crash call to delivery – undiagnosed 33 week breech delivery – required resuscitation, intubation and cardiac massage. The baby responded well. Extubated and transferred to SCBU – I dealt with the nursing and medical aspects of admission.'*

> *'I was attending a twin delivery. The SHO arrived as well and began to resuscitate twin 2. I did not feel that resuscitation was adequate and guided the SHO. The baby was admitted quickly to NNU to avoid further problems.'*

Another incident concerned a terminally ill baby:

> *'A relatively inexperienced nurse was looking after a dying baby. I was on the medical rota and was able, with the consultants' guidance, to medically 'special' the baby, to give the nurse support and guidance plus supporting the parents as a senior nurse involved in their care would have done.'*

One ANNP just gave an example of how she used her recently acquired skills and felt very positive about having done so:

> *'Attended 28/40 week emergency LSCS, SROM and fetal distress, performed resuscitation, ventilation, UAC, IVI. Planned next few hours of care, initial admission observation, BM Stix etc. performed. Not only 'medical' tasks carried out but priority 'nursing' tasks too.'*

The ANNPs were also asked if since qualifying they have been faced with any situations for which they have felt unprepared. Two thirds reported that no such situations had arisen, while others mentioned examining babies, ward rounds, a problem with technical equipment and responsibility for very sick babies in the absence of medical staff.

4.9 Sources of support

The qualified ANNPs were asked about sources of professional support, both during and after the programme (Table 9). During the programme itself, mentors, other students and programme coordinators figured prominently. Subsequently nursing colleagues and ex-students were important sources of support. Students and qualified ANNPs were asked about difficulties at work. These were most commonly discussed informally in the workplace (89% of ANNPs and students), though partners and friends also played a valuable role in this respect.

Source	During the Programme	After the Programme
Other Students/ANNPs	5	6
Nurse Mentor	8	1
Medical Mentor	10	5
Nursing Colleague/s	2	6
Registrar	1	
Course Coordinator	6	2
Junior Medical Staff	1	
Nursing and Medical Colleagues		3

Table 9: Sources of professional support for ANNPs during and since the programme (n=15)

4.10 Combining roles

The difficulty of taking on more medical areas of activity and at the same time keeping a nursing perspective should not be underestimated. The retention of nursing skills and the use of these in conjunction with more medically oriented activities was frequently mentioned by all those involved in the programme.

Information from the ANNPs on their own practice and the direct observations made on a small number of ANNPs validated the diaries, while providing positive examples of care using both kinds of skill. These included coordinating timing of procedures to fit in with care, feeds, examinations, and parent contact; being sensitive to parental anxiety, giving explanations to parents before procedures and during discharge examinations; preparing and clearing up after technical procedures themselves; holding and calming babies during procedures and advocating the need for pain relief. At the same time the ANNPs observed were responsible for teaching SHOs and nurses, making changes in medical management and carrying out procedures such as lumbar punctures and siting long lines.

While the evidence shows that ANNPs were using both their nursing skills and more recently acquired clinical expertise and trying to improve record-keeping or introduce joint documentation, at this stage they were less involved in decision-making and forward planning. In this exploratory study qualitative and quantitative data were collected on small numbers of subjects relatively new to the role. The full impact of established ANNPs as a professional group and the effect on the overall delivery of care has yet to be assessed. Setting up an effective monitoring mechanism that can inform the different professional groups involved and larger scale studies in the future are integral parts of the process of development.

5.1 Introduction

The aim here was to assess how neonatal nurses in the process of becoming an ANNP experience the programme. The structure and organisation of the programme itself was described and discussed in Chapter 2; and the methods employed in formal data collection on the programme and teaching in the home units in Chapter 3. The 12 students on the 1994 programme completed questionnaires each time the research team visited Southampton, in March, July and October of that year. Additional information from the two previous years' students was obtained in a single questionnaire that also covered their ANNP activities. Information from the medical staff involved in teaching came from interviews with the clinician mentors and junior doctors.

5.2 Concerns about the programme

Using a structured question format, student ANNPs were asked about their adjustment and the experience of being a full-time student again. Four categories of answer could be used to describe how much particular aspects of undertaking the programme worried them. The categories 'a great deal' and 'quite a lot' were combined to provide the data shown in Figure 17. It had been expected that at least some individuals would get accustomed to aspects of the programme concerned with classroom learning; this was to some extent the case with study skills, writing essays, reading critically, presenting to the group and the written examinations. Though some students became more confident in the context of academic learning, some continued to worry about all these aspects of the programme. Concern about the viva examination was high throughout the study period.

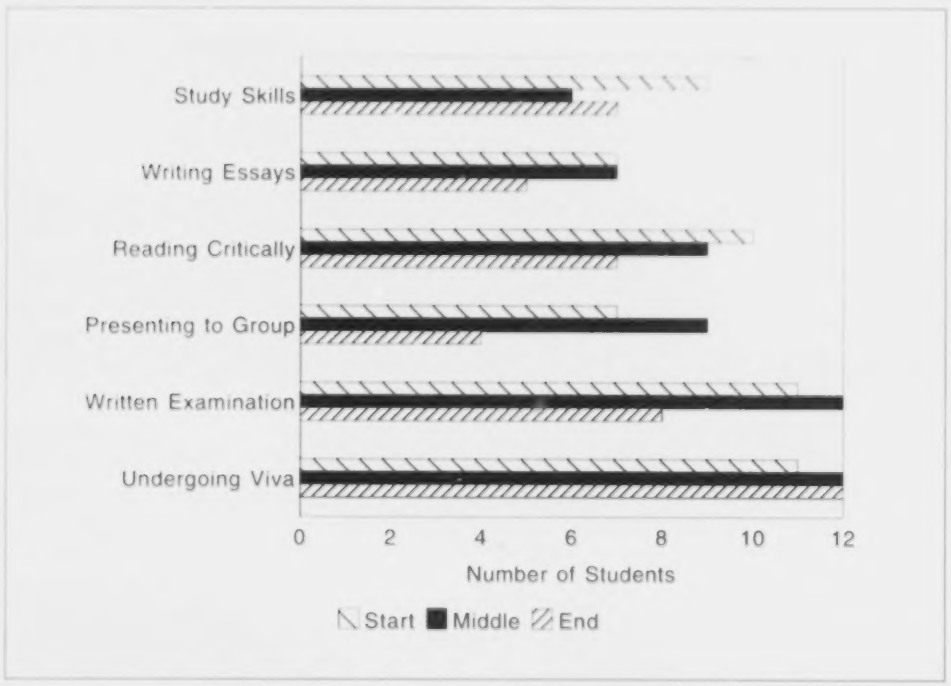

Figure 17: Worries about the programme

A need for support of different kinds was expressed formally and informally throughout the programme, and subsequently by qualified ANNPs from all programme intakes. The qualified ANNPs and the 1994 students (in the third questionnaire) were asked the same question concerning mentoring, tutorials and other aspects of the programme; these data are shown in Figure 18. Most felt they had received the right amount of nurse mentoring, but insufficient from the senior clinicians formally responsible for them, and just over half of those going through the programme felt they had needed more tutorial sessions.

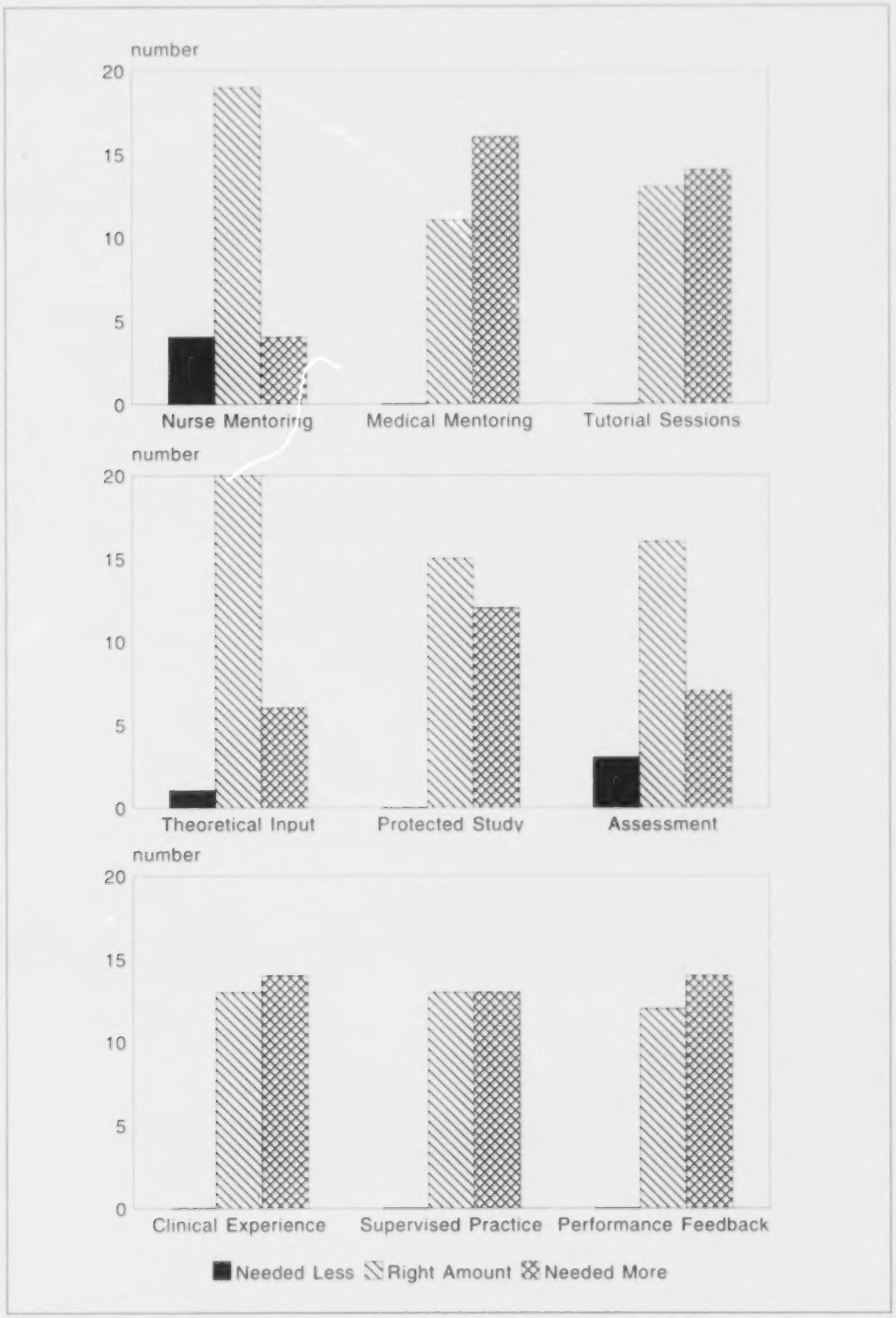

Figure 18: ANNPs' and students' perceptions of whether they received sufficient specific educational aspects of the programme (n=27)

The majority of ANNPs and students were satisfied with the theoretical input received, though some thought they needed more. A substantial number felt they had insufficient protected study time and a smaller number that more assessment was needed. Of greater concern to both the students and ANNPs were aspects of clinical experience and practice. A need for more clinical experience, more supervised practice and more feedback on their performance was identified by half of those who had undertaken the programme. (The subject of supervision is discussed in Chapter 6.)

The 1994 students were asked initially whether they had any particular concerns about undertaking the programme; all had one or more worries. Two-thirds were worried about their own academic ability and learning skills. Concerns about changing roles and how others will see them and fear of failure were also mentioned.

'I am very anxious about coping with the academic content of course.'

'I am worried about role transition to a student doing the course and afterwards. How other people perceive my position on the unit and what will be expected of me.'

'At present I feel inadequate – I used to feel confident in my job as a senior sister – will I feel as confident again?'

'I am concerned about whether I can manage the studying and attain clinical expertise in areas which although I am familiar with, I have never actually carried out myself.'

Analysis of the information from the same question repeated half-way though the programme showed less concern about academic ability and skills, and rather more about coping with all the theory, completing the programme and passing the exams, especial the viva. Crises of confidence appeared to occur at all stages. Several students were concerned about effecting a transition to the role of ANNP and two were wondering whether becoming an ANNP was the right career move after all.

'I am worried that I will miss things and won't be able to work as a ANNP when I get back because I'll somehow be deficient.'

'I am concerned about being able to cope with all the theory and passing all the exams, especially the viva.'

'I still have some concerns that the career move I am making may not turn out to be as I envisaged.'

The type of doubts expressed here may be more positive than they appear, indicating students' changing perceptions and insights about the knowledge and skills required in this advanced nursing role.

The programme design and duration was also mentioned here and in response to other questions:

'It is the time factor again. Will I have time to learn, read and absorb everything, plus fit in clinical experience and do case history etc. Time just flies, especially with all the travelling.'

In the mid-programme questionnaire, students were also asked an open-ended question about what they had enjoyed most so far. Despite concerns about their own abilities in the context of academic learning, 9 of the 12 referred to the learning experience and acquisition of knowledge in terms of enjoyment:

'Though I found the theory very hard at times, I have enjoyed learning.'

'I have learnt far more theoretically in the past few months than I thought was possible.'

'Being a full time student has been a novelty. It has been really, really interesting – I don't know how I nursed for so long in such ignorance.'

Developing new practical skills and meeting and interacting with other ANNP students were also mentioned in the context of enjoyment by significant numbers.

'Feeling good when a new skill is established.'

'I have enjoyed the group discussion outside the classroom and hearing about the different practices in other units.'

At this stage, students were also asked in an open-ended way about what they had found most difficult. More than half referred to the heavy workload, to the shortage of time and to the study skills and self-discipline needed in undertaking the programme:

'I feel as though there is not enough time to learn and study!'

'Getting down to studying, ensuring that I have grasped all that has been taught in readiness for the exam.'

'Disciplining myself to study.'

'Keeping up with all the reading that is required – I haven't managed to read nearly as much as I feel I should.'

'The course is too short. There is no time to learn in-depth all the theory, plus read all the research articles and go to work for clinical experience. I feel I am constantly chasing my tail.'

'Studying and attempting to gain clinical experience under quite restrictive time constraints.'

Smaller numbers of students, mentioned the problems associated with being away from home and living in the nurses home for the teaching blocks:

'Being so far from home – this aspect has got harder as the course progressed.'

'I felt very stressed at home and whilst I was here. On more than one occasion I felt like giving the course up.'

'Being away from home and living in the nursing home is sometimes unbearable – just four walls.'

At the mid-programme point, when the students were expressing these worries and concerns, they also described themselves as managing to cope with the programme, some quite well.

5.3 Practical issues

In the same way that they had been asked about their concerns, what they had enjoyed or found difficult, the ANNP students were also asked if they wished to raise any practical issues about the programme and its organisation. The duration and intensity of the concentrated blocks of time in the classroom were seen as a problem by some, even though these had been shortened in comparison with previous programmes.

> *'The block study weeks make me feel isolated from my own unit and initially I thought I was losing my nursing skills, but once back on the unit – everything fell into place.'*

> *'I find the two week blocks hard, being away from home and the content of two weeks' lectures hard to digest, but realise with the long distances that some students have to travel little can be done.'*

Some students again referred to being away from home, but in this context more practical aspects were mentioned:

> *'The accommodation was initially awful. It has taken months to get a room with a sink and a corridor with a cooker!'*

Some students also mentioned the efforts of the programme leaders and coordinators to address the issues raised.

5.4 Programme topics

The qualified ANNPs were asked in general about any areas not adequately covered in their programmes. Most felt that the necessary areas had been covered quite well or very well, though some added a qualifier about the shortage of time. The specific areas that were mentioned by small numbers of students as being insufficiently covered were anatomy and physiology, fluid and electrolyte balance, ventilation and pharmacology. There were also concerns about the need for teaching study skills and essay writing. One ANNP felt that there had been too much on reflective practice and nursing models.

The students were also asked retrospectively in a more structured way about how specific topics had been covered in the programme; the data are illustrated in Figure 19. With each of the topics listed some felt they needed more teaching. The microbiology and research methods part of the programme were the most common areas where more teaching was required according to the responses. The subjects that were felt to have been given more teaching time than was needed were the 'softer' areas like psychology and social studies. It may be that being experienced nurses, with post registration qualifications already, they did not feel these areas to be important. Alternatively the pressure to learn about and acquire new clinical skills during the programme appeared to dominate. Which ever is the case, the implications of having the development of a more 'holistic' advanced nursing role as a goal need consideration.

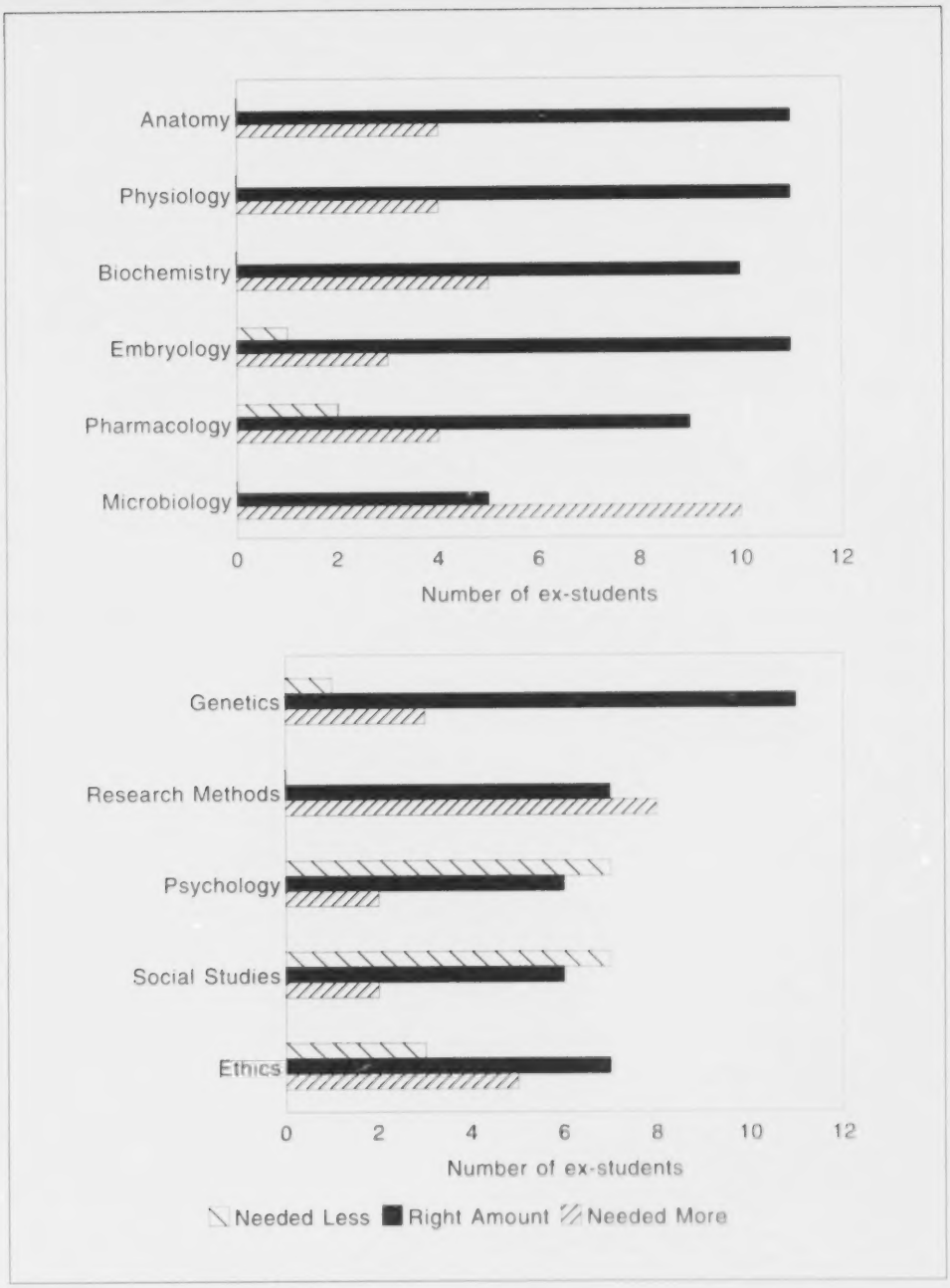

Figure 19: Perceptions of the amount of teaching on given topics

The current students were provided with the same question format, though as they had not quite completed the programme, the data are not directly comparable. Like the qualified ANNPs, a large proportion felt that more teaching was needed on research methods. However, in contrast to previous years' students, a third indicated that the area of psychology required more teaching input and none felt that too much time had been spent on this aspect of the programme. These differences may reflect variations in the make-up of the groups involved or of changes made to the programme content.

5.5 Clinical practice and supervision

Clinical teaching and the associated acquisition of clinical experience are key elements in the training of ANNPs. A wide range of technical procedures and practices are an integral part of neonatal care, and students must learn and integrate the practice and theory. Students and new practitioners must therefore be taught the theoretical basis, introduced to the tasks, observed, and ideally, have carried them out with, then in the absence of, supervision. Half-way through the programme the students were asked about their clinical experience since starting the programme, using the same list of tasks and procedures used with the qualified ANNPs. They were also asked the same questions at the end of the programme. The data on clinical practice items (supervised and unsupervised) achieved by the 12 students at these points are shown in Figure 20a-d.

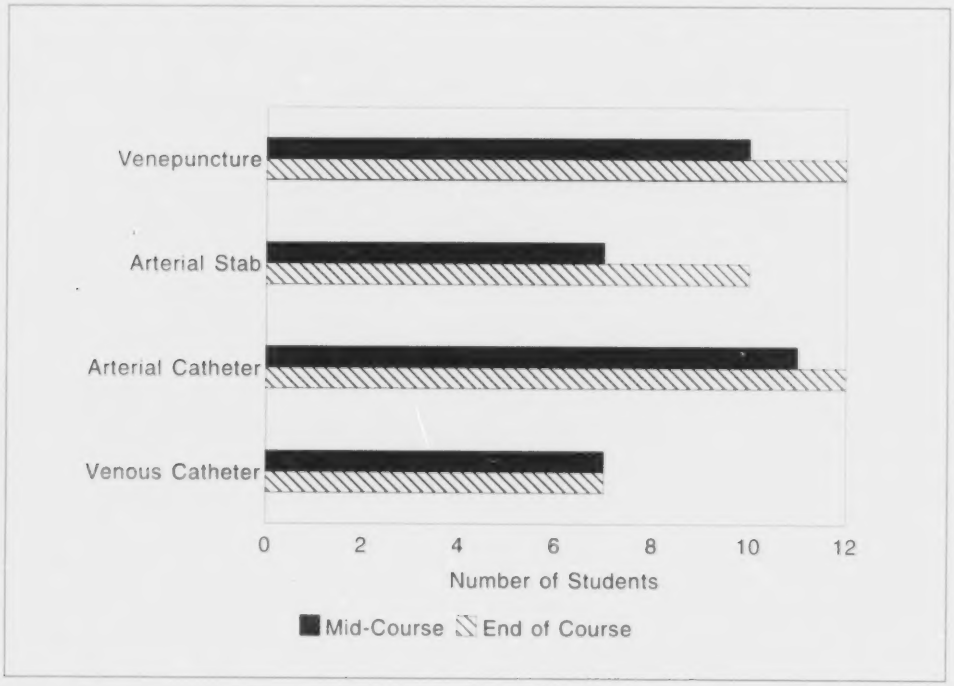

Figure 20a: ANNP student practice undertaken: blood sampling

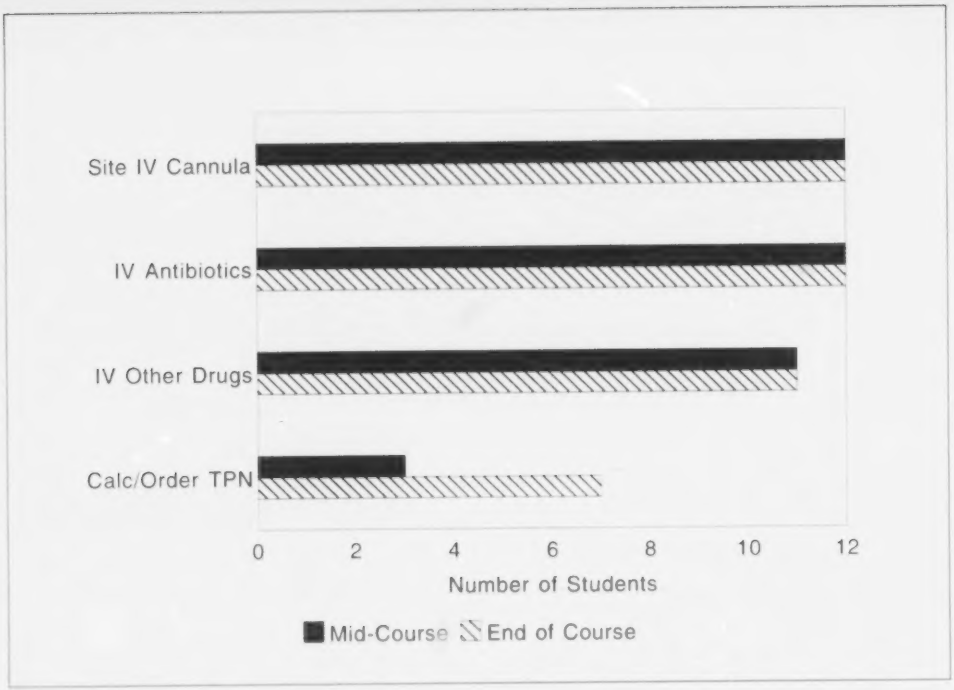

Figure 20b: ANNP student practice undertaken: administration of drugs and fluids

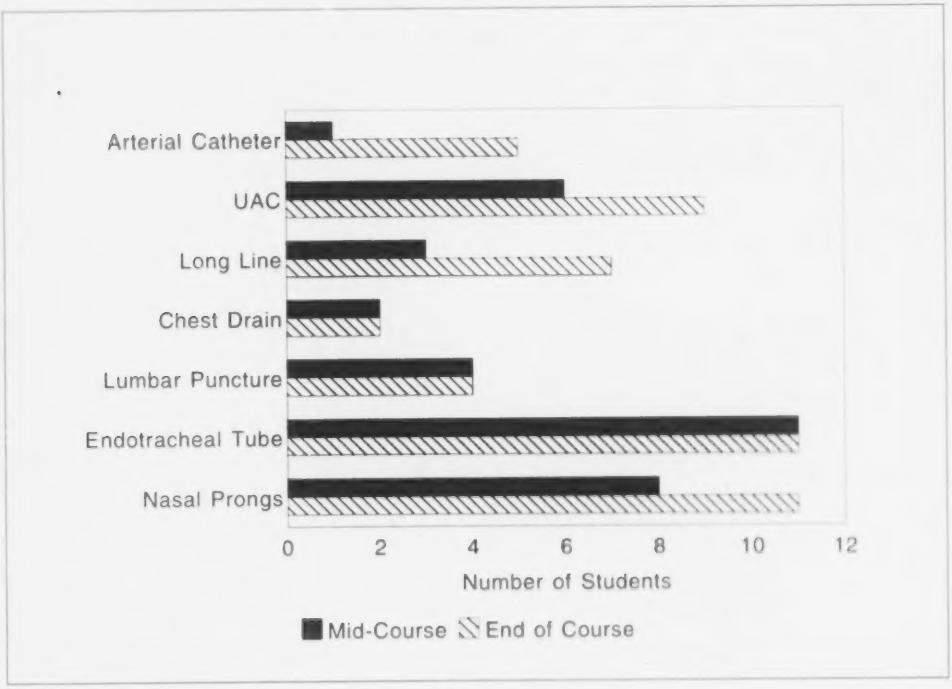

Figure 20c: ANNP student practice undertaken: invasive procedures

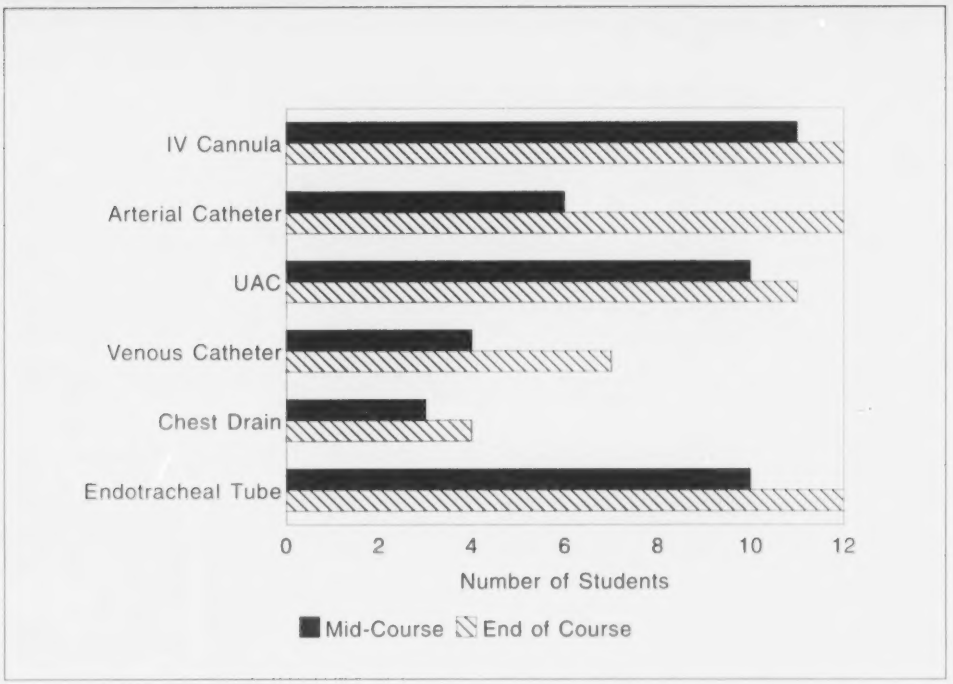

Figure 20d: ANNP student practice undertaken: removing equipment

Blood sampling techniques (excluding that via a venous catheter, which was not in use in all the units), the administration of drugs and fluids and the removal of equipment such as UACs or ET tubes had often been undertaken by mid-programme. At the end of the programme a large proportion of ANNPs nearing their final exams and graduation had achieved what was expected of them in these areas, although a few still had to take blood samples by arterial stab.

There was an increase in the numbers of students having carried out some of the less common and more technically invasive activities between the mid and end points of the programme; these included inserting an arterial catheter, UAC and a central venous long line. Five of the 12 students had not undertaken the calculation and ordering of TPN by the time data were collected near the end of the programme, though it had been observed; details on practice and supervision of some tasks are shown in Figure 21a-b. The need for the post-programme apprenticeship period is evident. By the end of the programme, activities like blood sampling by venepuncture or via an arterial catheter, which may have been undertaken by some nurses prior to the programme, were carried out unsupervised. By this time most of the ANNP students were also undertaking IV cannulation and half were able to insert UACs unsupervised. The student ANNPs were less likely to have seen, or have observed only, the less common procedures such as the insertion of chest drains, long lines and lumbar punctures. In contrast, intubation was almost entirely carried out under supervision. This may reflect both the emergency nature of the procedure and indicate that a longer period is being allowed for learning the skills required with this technique.

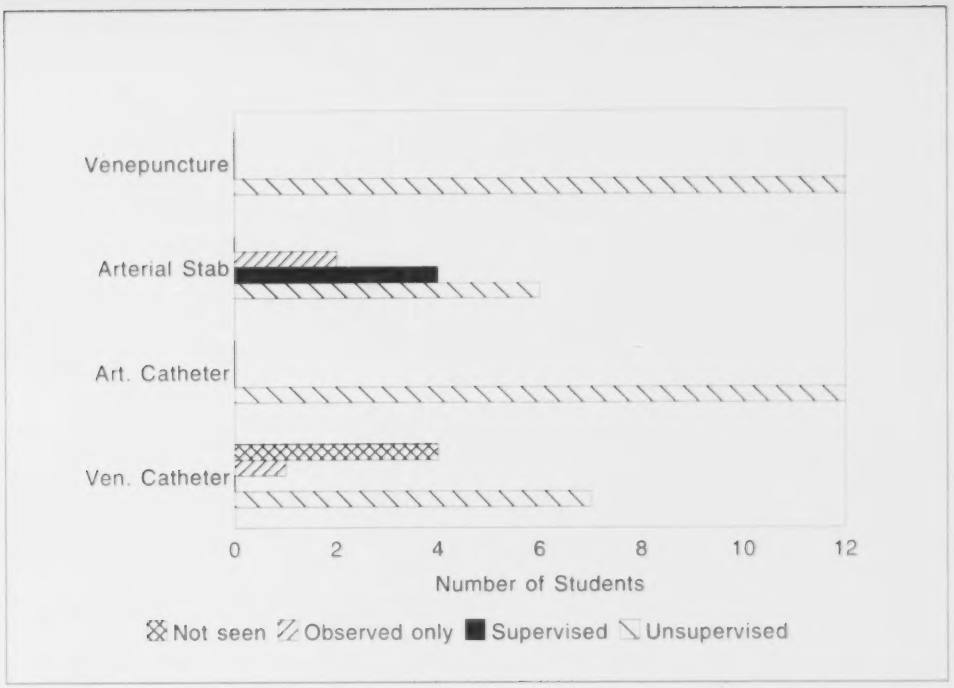

Figure 21a: ANNP student practice undertaken by the end of the programme: blood sampling

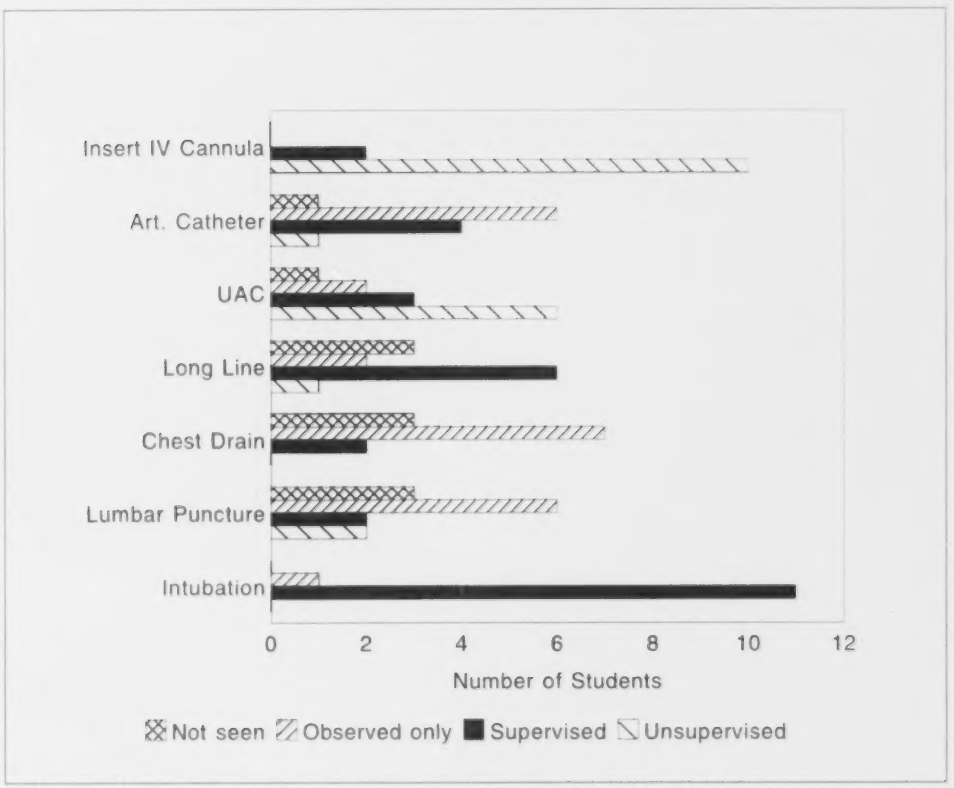

Figure 21b: ANNP student practice undertaken by the end of the programme: procedures

The pace at which students progress depends on their learning and skills, but also on the availability of clinical practice and support of the other unit staff involved. The students were asked who had been teaching and supervising them in their home unit; these data are shown in Figure 22. They had been taught and supervised by between one and four levels of staff, and probably by more individuals than that. All the student ANNPs had been taught by a consultant, but only half had been supervised by a consultant. At least two-thirds had been taught and supervised in their clinical practice by registrars and SHOs. In units with qualified ANNPs, they took an active role in both supervision and teaching the students.

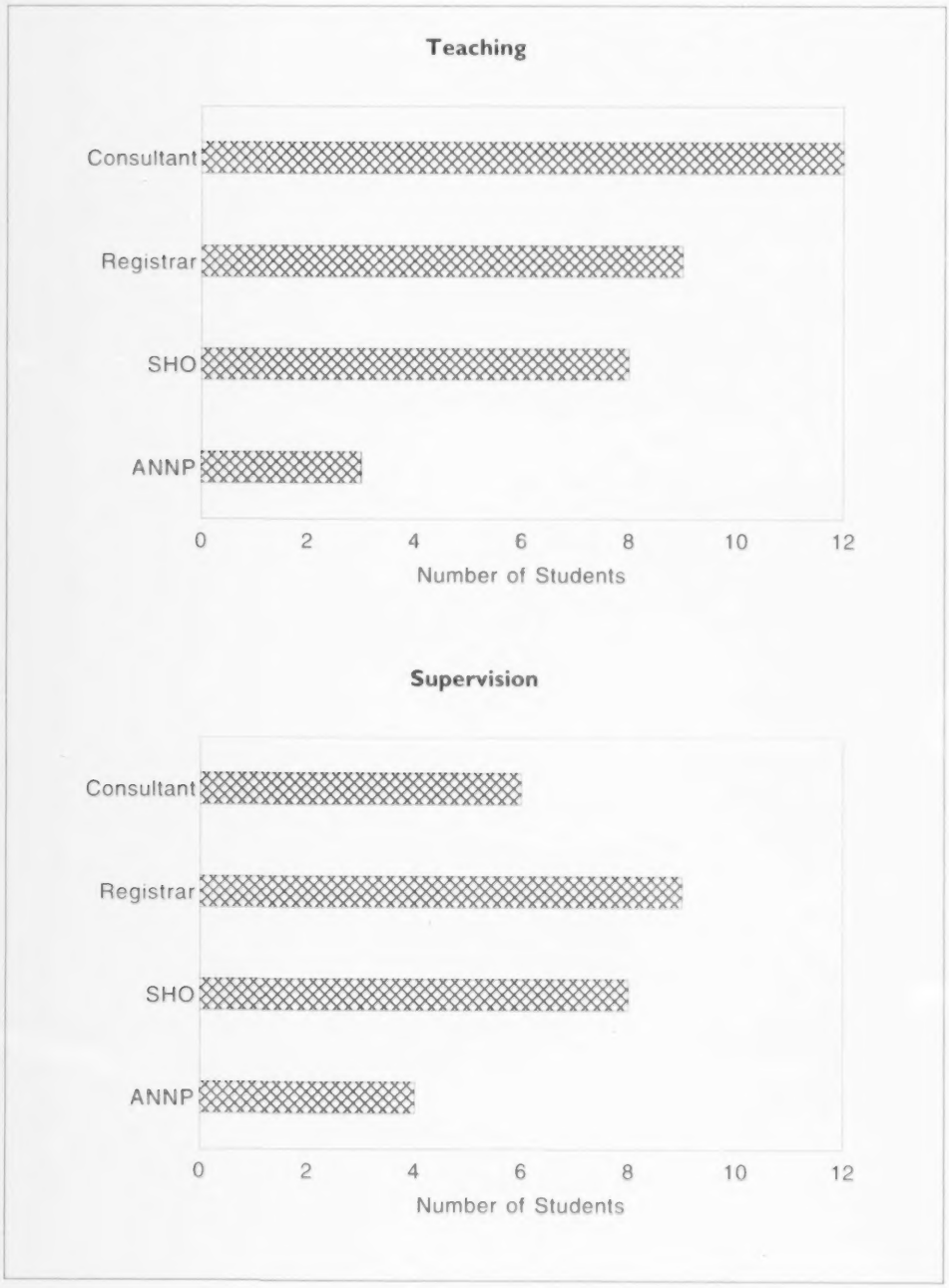

Figure 22: Teaching and supervision in the home unit

In the questionnaire completed at the end of the programme, students were asked whether there were any theoretical areas about which they did not feel confident at this stage. Few specific areas were mentioned, those that were included respiratory physiology and management, general histology, research and research methods. More general issues concerned the students, namely the problem of relating theory to practice and of retaining and being able to use the facts:

> *'I know I have learnt a great deal but as the course is so compact I don't feel I have learnt the theory thoroughly, especially the anatomy and physiology. Hopefully in my three-month trial period I will be able to revise and learn in more depth more easily because the pressure will be off.'*

> *'At this stage I feel I have all the information. I can even recite a great deal of it, but I am only just starting to understand it enough to be able to use it in practice.'*

A similar question concerned specific areas of technical expertise about which the students did not feel confident. Two-thirds indicated a lack of confidence on a broad front, mentioning a wide range of activities:

> *'At this moment in time I do not feel confident about ALL the technical areas which we have covered.'*

> *'I do feel I haven't had sufficient time clinically to feel confident at any of the practical skills yet!'*

Intubation was the most commonly mentioned specific procedure, though insertion of UACs, long lines and chest drains were also referred to in this context. Case management summaries and presentations were also seen as something new that ANNPs were taking time to feel confident about. Some students were also aware of their lack of experience in examining babies, both on the postnatal ward and on admission to the neonatal unit.

The need for more supervised practice concerned the students undertaking the programme. They were also aware of the need for more experienced staff to be involved in supervising their clinical practice:

> *'I need more supervision when attempting intubation – by someone more senior than SHO.'*

The mastery of clinical skills and procedures was acknowledged as a priority by the programme lecturers and leaders and the clinicians in the home units.

Student concern about clinical experience and supervised practice may be a reflection of the emphasis in the programme content and teaching, and of the programme requirements in terms of numbers of procedures to be carried out. It is also likely to be a reflection of the current nature of medical care of the sick or small newborn in which the students are being trained to take part. Perhaps, more importantly, it is probably a natural stage in acquiring the skills.

5.6 Attitudes towards the programme

Near the end of the programme the students were asked a number of open-ended questions about their experience. These included what they had enjoyed, the best and worst aspects of the programme and if any aspects had disappointed them. Three-quarters said they had most enjoyed the learning experience itself, especially in the company of like-minded nurses:

'Acquiring new knowledge and skills and being with other people from different hospitals.'

'The theoretical input and learning new clinical skills.'

'Being a full time student and so being able to step back and view work from a fresh aspect.'

'The learning – we have gone into much more depth in all aspects of neonatal care and it is good to know why things happen.'

Some were aware of their own personal development:

'I have learnt so much about neonates and some aspects about myself.'

'I've loved being a student and being responsible for my own time.'

Others were pleased about learning new clinical skills that they hoped to put into practice.

The aspects of the programme the students most commonly mentioned as best was meeting people from other units, and the supportive attitudes members of the group had towards each other. Intakes of students may differ from year to year, but the group studied while undertaking the programme gave the impression of cohesion very early on. Individual students mentioned the support from their home unit, success in mastering technically difficult skills, and increased self-confidence. The high quality of the teaching and the biomedical science areas of the programme were also put forward by some students in describing the best aspects of the programme. Better understanding and using some of the clinical skills they have seen others (mainly doctors) practise, seemed to be among students' key motivating factors and sources of satisfaction.

The most negatively perceived features of the programme, not surprisingly, were the exams and assignments, the associated revision, viva examinations and the stress associated with them. Some students were disappointed in the feedback given on their performance, that relatively little time was spent on clinical procedures in Southampton, that problems in getting sufficient clinical practice were not addressed and that there was insufficient input and preparation for essay writing and exams.

The conflict between the need to revise the theoretical material and to gain clinical expertise was evident:

'Always having an exam or an assignment looming, this tended to distract from clinical experience and so you needed to put in more hours to gain clinical competence.'

'The pressure of another exam, work to hand in hasn't allowed for clinical skills and time in the unit that I would have liked.'

'No time to learn in depth as you are bombarded. Then there are the problems encountered with obtaining clinical experience.'

5.7 Health and wellbeing while on the programme

The intensive nature of the programme, the heavy workload, the pressure to complete the clinical practice requirements and the adjustments that individuals have made, might have been expected to have some effect on their health and wellbeing at times. An illness checklist that had been used in a large-scale study of neonatal nursing (Redshaw, Harris and Ingram, 1995) was given to the students when they were nearing the end of the programme. The numbers of illnesses they had suffered since starting the programme (a period of six months) ranged from two to nine (mean 4.6). The qualified nurses in the study, referred to above, had on average less than this number of illnesses in the course of a year. However, when asked about their general health at the end of the programme this was largely perceived as good, with the students describing themselves as 'mostly well and healthy' or ' fit and well'. A relatively small proportion had taken time off sick and then usually for one or two days. However, nearly all reported suffering from anxiety during the programme and a third from depression. When asked in the middle of the programme, the students felt that on the whole they were coping reasonably well to very well with the programme; asked near the end of the programme and prior to the viva examination none felt they were coping very well and some felt they were not coping. The answers to the structured and open-ended questions suggest there is an emotional and psychological cost, as well as an intellectual burden in taking up this kind of challenge.

5.8 Changes over the programme

Some changes in the students' perspectives were expected over the programme as they learned new skills and procedures. Their perceptions of the role of the ANNP changed with time and will probably continue to do so as they become established in their own units and begin to practise as qualified ANNPs. The adjectives selected to describe their unit as a place to work were presented as a checklist at the beginning and end of the programme are shown in Figure 23. Some ANNP students at the end of the programme saw neonatal care as a more challenging, exciting, supportive and less pressurised environment, while it was also more nerve-racking.

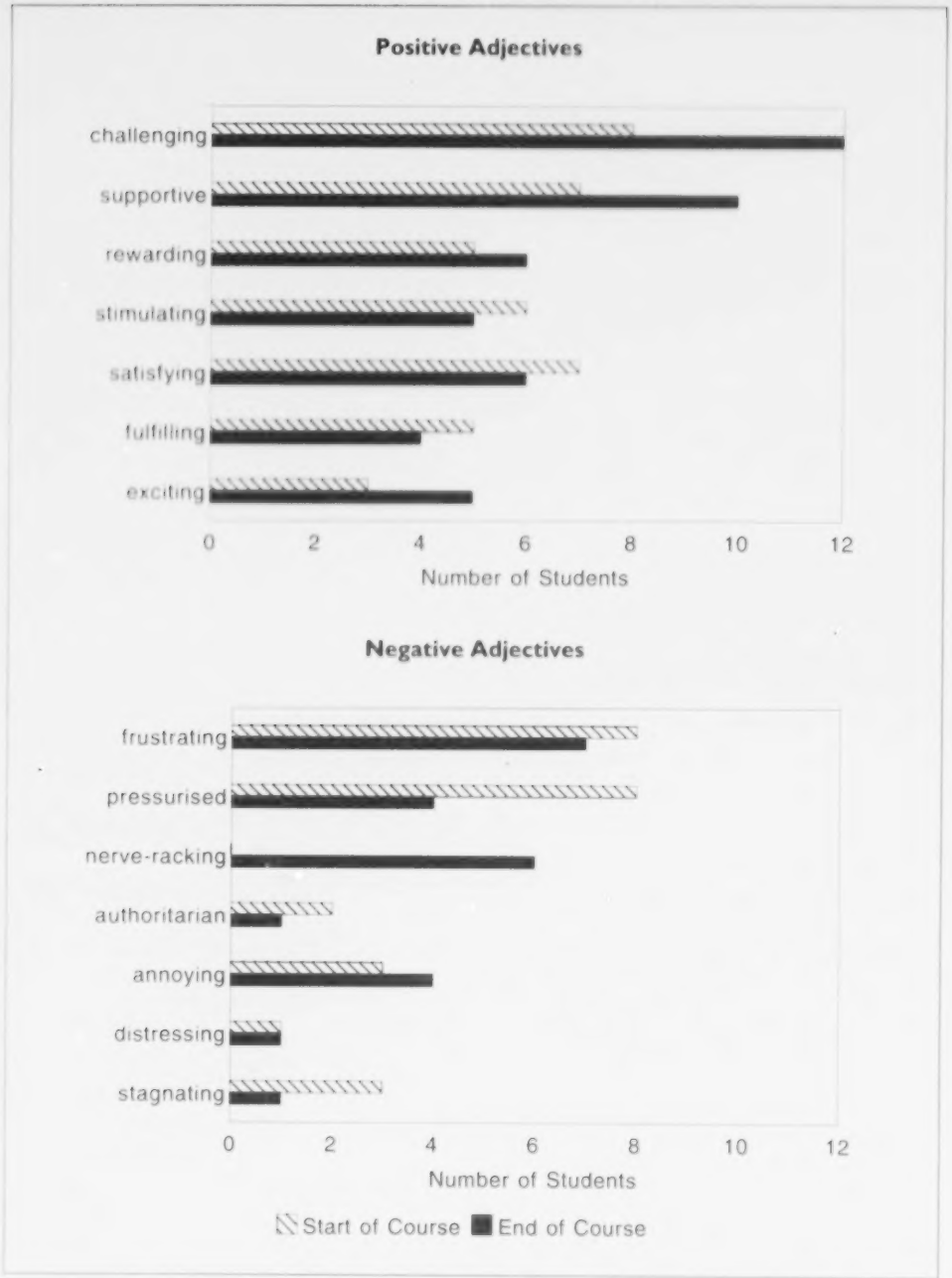

Figure 23: ANNP students' perceptions of the unit as a place to work

Differences in perception of the role of the ANNP are shown in Figure 24a-d. There was little change in the views on the area of investigations and prescribing or in emergency care, but rather more in the areas where medical staff have been traditionally more active. Thus by the end of the programme most ANNP students were not expecting to take outside referrals, see patients at follow-up clinic or certify death, while fewer thought ANNPs should be taking a case-load and conducting wards rounds. These changes may be directly related to what the students are taught; they may also be a function of the expectations and limitations set in their home units. Role ambiguity and a lack of definition can be difficult to handle when changing roles, and the problems can be compounded when there is no clear consensus and agreement among the personnel involved. Of the 10 units involved with the first two years' students in 1992 and 1993, only seven could provide job descriptions when requested in 1994. Prior to

students undertaking the programme, their units are expected to give some definition of the anticipated ANNP role, so by the time students graduate it might be anticipated that this important aspect would have been negotiated and agreed. This was not the case as the students' comments show:

> *'I am still unclear as to the role of the ANNP as I was at the beginning.'*
>
> *'My view has not changed but I feel others' views are changeable and this may be a problem. I don't know yet.'*
>
> *'I am uncertain about my role when I finish the course and still haven't found my identity in my own unit when I go back for clinical sessions.'*
>
> *'When the hospital sent me on the course they had a role for me once qualified. As the course is progressing, mine and their job roles are beginning to differ. The role I now see is far more clinical, whereas they see it as educational.'*

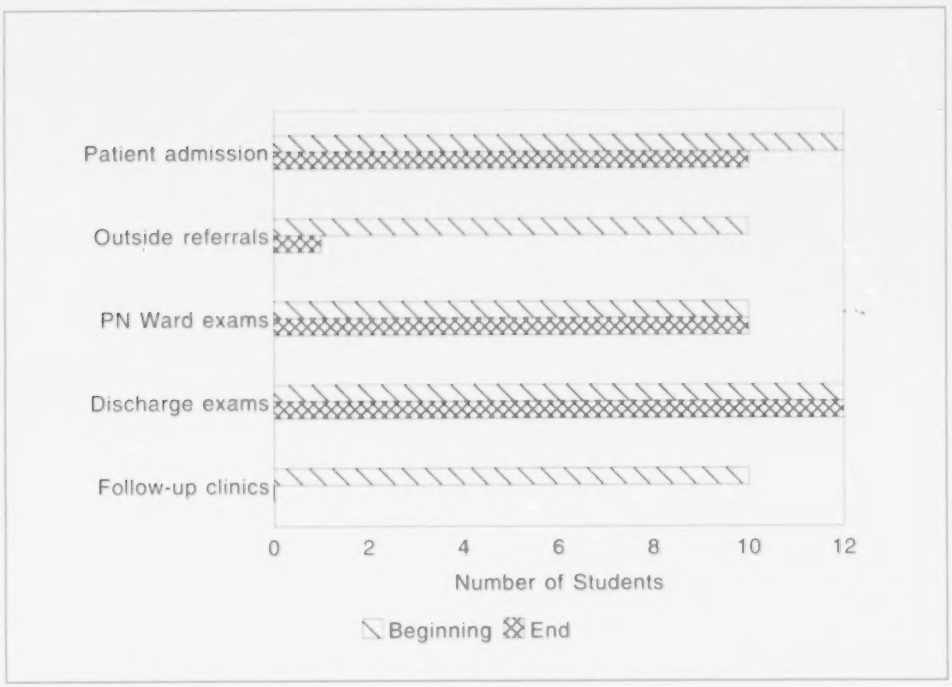

Figure 24a: Student views on the constituent parts of the ANNP role, at the beginning and end of the programme: admissions and examinations

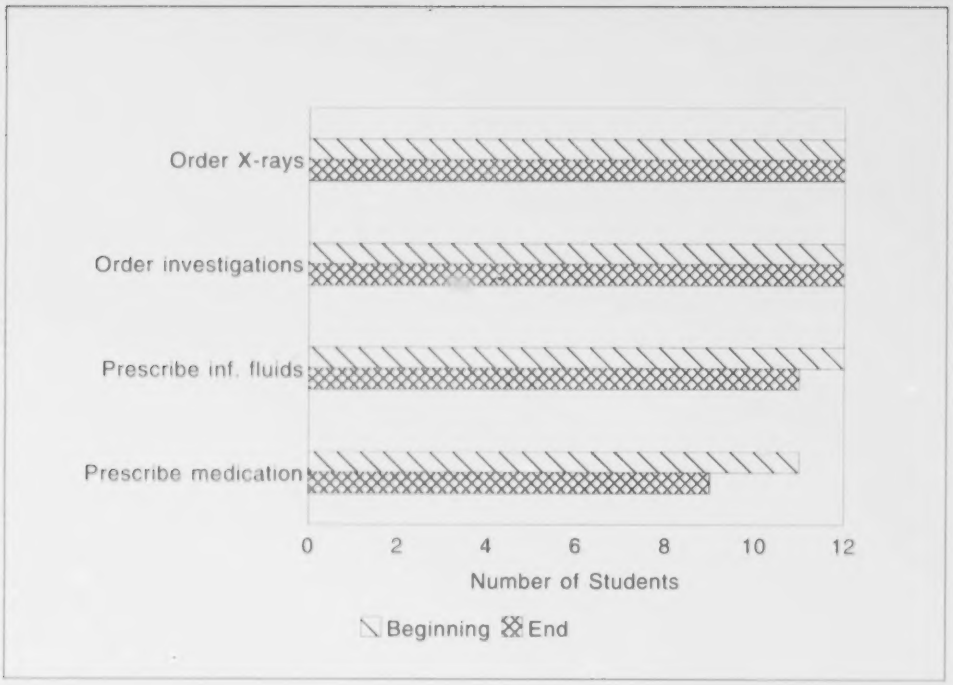

Figure 24b: Student views on the constituent parts of the ANNP role, at the beginning and end of the programme: investigations and prescribing

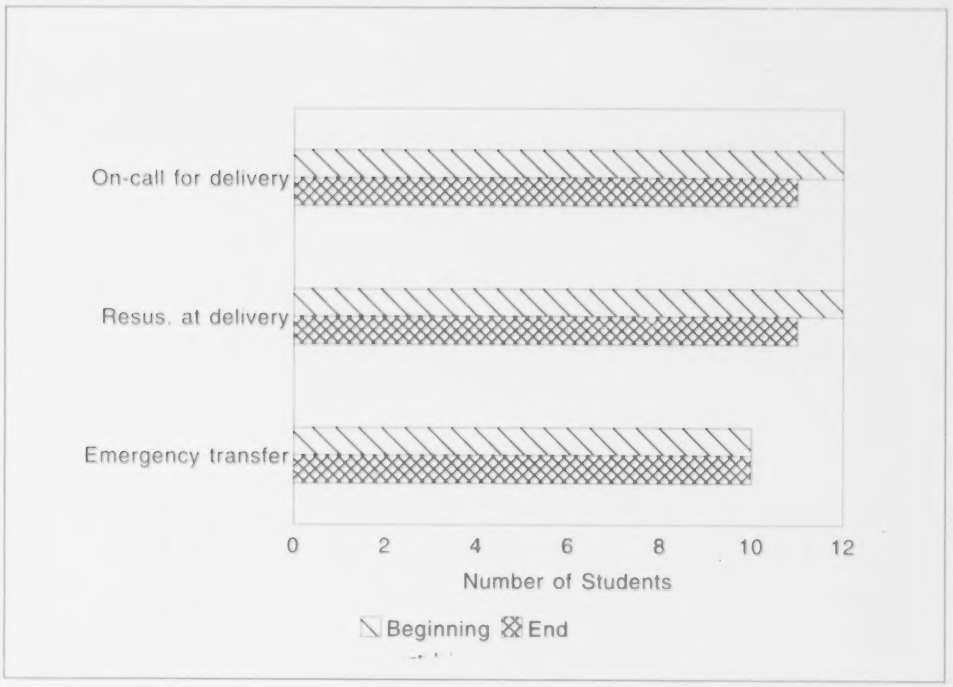

Figure 24c: Student views on the constituent parts of the ANNP role, at the beginning and end of the programme: emergency care

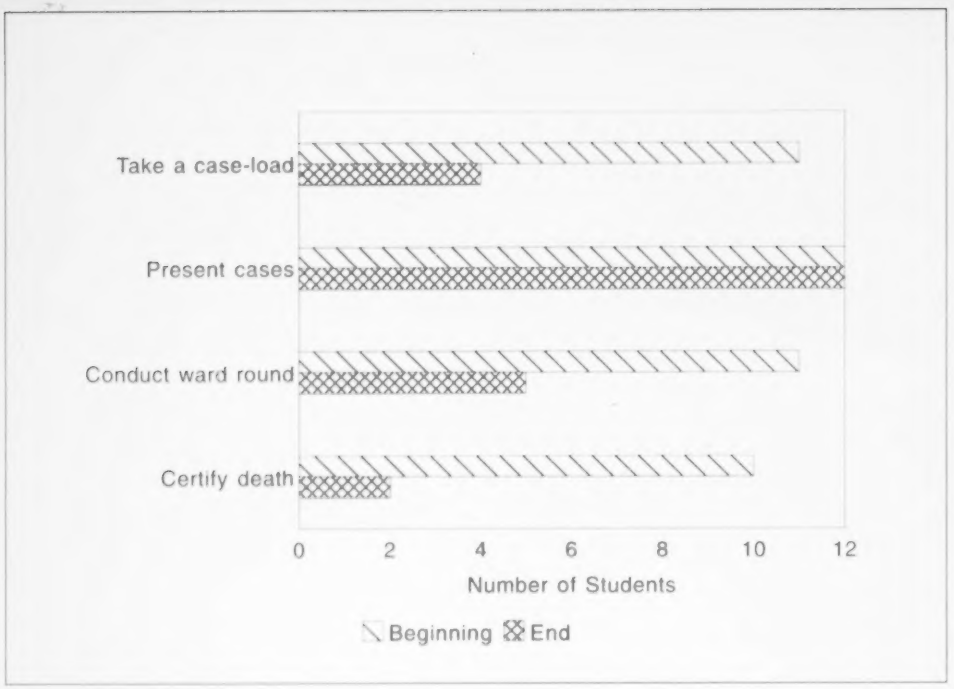

Figure 24d: Student views on the constituent parts of the ANNP role, at the beginning and end of the programme: common medical responsibilities

5.9 Changes to the programme

The general advice that the students and qualified ANNPs would give to other nurses thinking about becoming an ANNP and related issues are discussed in Chapter 8. More specific points on which they were asked questions are discussed here.

Most of the students felt the programme was too short, and while half thought the duration should be 12 months, some thought it should be longer still to satisfactorily encompass both the theoretical and practical elements. Separating the theory and practice was suggested by a number of students:

> *'It would be better to concentrate all the theoretical input into the first part of the course – then to concentrate on the clinical practice exclusively with no pressure on the student to submit written work at this juncture, allowing for refining and practising of newly acquired skills.'*

> *'The first six months should be all theory – no clinical experience on the unit but practice in school, for example, putting the chest drains into rabbits. The research critique should be in first six months. The last three months should be spent on the case study, viva and getting clinical experience on the unit.'*

All but one thought successful completion of the programme should be marked by a more academic qualification. Eleven of the 12, on being asked whether they would take up an option for obtaining a higher degree by undertaking a dissertation, said they would if it were available. Clearly the motivation to continue learning, now established, was an aspect of the experience that was important to many of the students and qualified ANNPs.

The intensive and academic nature of the programme, the quantity of information and theory already included and the need to expand on some topics would suggest that the duration of the programme could be expanded. The transition from neonatal nurse to ANNP is a substantial one in which it is expected that there are marked changes in the conceptual knowledge base and at the same time conspicuous alterations in role. The psychological and role adjustments required to follow a condensed learning curve and face new challenges must not be underestimated. However, the time frame for full development of the role of ANNP is likely to extend well beyond the educational programme itself.

6.1 Introduction

All clinicians responsible for neonatal care in the units from which the ANNPs on the first two programmes had come were interviewed about the programme and the development. A total of 12 consultants were seen in 10 units as the research team visited the different hospitals with ANNPs.

6.2 Funding for training and employment

The issue of funding was frequently raised by managers, ANNPs and clinicians. In initiating a new development and role, both the professional and financial bases need to be underwritten in a reasonably sound manner. The planning and setting up of the programme itself is the starting point, but having acquired new skills and achieved the status of a qualified ANNP, these new professionals need to enact and consolidate their role. All three groups were asked about the arrangements for funding students on the programme and their replacements in the home unit, and for funding an ANNP post on their return.

Specific funding for running the programme and funding the student places largely came from the regional health authority, though the home unit was also mentioned, as were the Regional Task Forces set up to address the need to reduce junior doctors hours and Working Paper 10. While units were willing to send experienced nurses on the programme, they were not fully funded for a replacement and in most instances the student ANNPs were not replaced by nurses of the same grade.

The clinicians were asked about sending other nursing staff on a further ANNP programme: more than half were planning to do so again or already had sent one; two said they would not be sending anyone else; one was unsure and another would only send another nurse on the programme if they did not have to pay the costs.

When asked about sources of funding for staff who were now qualified ANNPs, a range of answers were given (Table 10) and the impression from managers and clinicians was one of a changing situation in which short-term contracts, different grades for variable 'apprenticeship' periods and uncertainty were playing a part.

Of the first 16 ANNPs to qualify, 10 returned to ANNP posts of some kind in both small and large units – seven to do some or entirely SHO duties. By the end of the study period there were better funding arrangements for some, but not all the qualified ANNPs. Similar problems were anticipated by some of the students currently on the programme from other parts of the country, for whom posts had not yet been created.

Funding by Units of Nurses Qualified as ANNPs

Nursing Budget	2	Trust	1
Medical Budget	1	Directorate	1
Nursing and Medical Budgets	2	Regional Taskforce (JD)	1
On Unit Budget as Nurses	1	Health Commission	1

Table 10: Funding of posts for qualified ANNPs who were among the first two programme intakes (10 units, May/June 1994)

6.3 Changes in neonatal nursing

As discussed in the results section on the role of the ANNP, the clinicians were asked about the specific duties and procedures undertaken by nurses and medical staff in their unit (Tables 4 and 5). They were also asked more generally if, prior to the programme, nurses in their unit had begun to undertake what would be considered 'expanded' role tasks and whether there was training for these. According to the clinicians, some nurses had begun to take on extra tasks in nine of the 10 units, though only six units gave specific training for these. Two-thirds of the clinicians thought that all qualified nurses would be taking on a more expanded role in the future as a routine part of their work in neonatal care.

6.4 The numbers of ANNPs required and work allocation

The clinicians were asked how many ANNPs would be needed in the future in their unit and how the work of the ANNP or ANNPs would be organised. All said that at least one ANNP would be employed in their unit; the numbers put forward varied between clinicians and between similarly sized units: in the largest type of unit it was felt that four to five ANNPs were needed, in the intermediate sized units two to six (mean 3.75), and one to four (mean 2.6) in the smaller units. Views about needs differed:

> *'We are considering the appropriateness of working in neonatal intensive care for GP trainees. A team of ANNPs would provide a good alternative service.'*
>
> *'More ANNPs are needed in our unit to give a better spread.'*
>
> *'The problem is that SHO cover is needed for paediatrics and ANNPs cannot provide that. The unit itself is not busy enough to really justify more ANNPs.'*

The way in which these ANNPs would be expected to work varied similarly. Unless taking up areas of activity in which they were not currently involved, in all units ANNPs would be expected to be a 'total' or partial 'doctor replacement' being on the SHO rota, being on call for the SHOs and helping by taking on some of the SHOs' workload (see Table 11).

ANNP Work Allocation in the Future

Replace SHOs completely	1
On SHO rota all of the time	2
On SHO rota part of the time	1
ANNPs + taking some of SHO workload	3
ANNPs + on-call for SHOs	2
ANNPs + SHO workload + SHO on-call	1

Table 11: Future organisation of ANNP work (10 units with qualified ANNPs)

In relation to the current situation and the effect of changes in junior doctors' hours, clinicians commented rather variably:

> *'Having an ANNP helps with the junior doctors' workload more than reducing hours.'*

'The introduction of a shift system for junior doctors has resulted in discontinuities in care and there is a great onus on nurses to fill that gap.'

'ANNPs are used differently in large and small units. They are not an SHO replacement, but rather an addition.'

'In the future I can imagine a team of five ANNPs at H grade. Higher quality care. I envisage collaborating across trusts, providing an optimum emergency service'

'ANNPs are not the solution to the problem of junior doctor hours.'

As the clinicians responsible for neonatal care, those interviewed were asked about the effects of the need to reduce junior doctors' hours and the way in which the role of the ANNP might fit in with these. Most frequently their replies mentioned being able to extend the rota, reduce the on-call duties and the way that ANNPs could fit in with SHO shifts. The benefits of support and training for junior medical staff and a reduction in the intensity of their workload were also mentioned here. In response to a direct question about the benefits of having one or more qualified ANNPs in the neonatal unit, just over half referred to the higher quality of care available (Figure 25). Most listed several benefits:

'Raised standards of care; pressure off SHOs at induction time; more use of experienced nurses'.

'Relief for the SHOs; someone else highly trained to educate the nurses and junior doctors; parents have the constant presence of ANNP during the day compared with the SHOs who move around.'

Figure 25: Clinicians' views of the benefit of the development of the ANNP (n=12)

All the consultants referred to direct and indirect effects on junior medical staff and their workload. However, in regard to the ANNPs themselves, the sound skill base, their continuing presence in the unit and the ability to communicate well with parents were valued.

6.5 The meaning of mentorship

The clinicians involved in neonatal care, many of whom taught on the programme, were also designated clinician-mentors responsible for teaching and training ANNPs in the home unit. To assist them in this role, a half study day was arranged and an information pack provided for clinical mentors; they were asked about their perception of the mentor role, the responsibilities, any practical problems, and the way that the individual teaching was organised. The role of clinical mentor required interest and enthusiasm and for the most part the clinicians were positive about the experience. The mentor role was:

> *'Hard work and rewarding. I enjoyed it, the students are hungry for knowledge on a tough, emotionally-draining course.'*

> *'A challenging and interesting role, but not a difficult one with enthusiasm and commitment on both sides.'*

Individuals described themselves as 'a link between theory and practice', 'a sounding board', 'a tutor', 'a lecturer and a listener'. Others were concerned about their own skills and the training required for the role:

> *'As mentors we leapt off the cliff together.'*

> *'Mentorship brought one face to face with reality concerning the needs for training. Assumptions were made about the ability of individuals. There was no communication training as a medical student. I felt inadequate as a mentor. The training for clinicians had not been thought about and my colleagues felt similarly.'*

> *'We need a clear understanding of what mentorship is about in order to support a student. Mentors may need to get together more often.'*

When asked about the responsibilities of being a mentor eight of the 12 clinical mentors mentioned pastoral aspects of the role:

> *'Clinical teaching, including examination of newborns. Helping through the emotional ups and downs during the course. Giving reassurance and discussing problems.'*

> *'Giving emotional and psychological support and guiding the student along the correct educational path, not necessarily teaching them directly.'*

> *'Coordinating and adding depth to theoretical knowledge. At the same time providing a reserve for individuality.'*

Nearly half emphasised an academic aspect of their role, while a smaller number referred to clinical supervision and checks on decisions made.

Clinical mentors were asked about any practical problems experienced in mentoring ANNPs. In this context all the consultants referred to the very real problem of the time needed and the time available for teaching ANNPs. Most formally set aside one hour a week for seeing the student and apprentice ANNPs, though more contact was likely to occur in the context of clinical teaching in some units. In six of the 10 units, regular tutorial sessions were given and in the remainder, more informal arrangements were in operation 'as and when', in association with ward rounds and in conjunction with other hospitals:

> *'It is important to have protected time for teaching and tutorials and to be available to talk over specific issues.'*

'Didactic teaching is not appropriate. ANNPs need to understand more philosophical aspects of the learning experience and there is not enough time to give this to a student.'

'Need more thought about use of time. My responsibilities included checking that the ANNP was up to date and carrying out procedures successfully.'

'I had to make sure all aspects were covered – practical skills and diagnosis – at a pace the student could cope with. There were problems in setting the time aside.'

'Lots of time is needed. You need to be flexible at times of crisis. There are no qualifications for being a mentor. The half day meeting imparted useful knowledge, but was limited.'

A third of clinician mentors also mentioned the problems associated with the ANNP students gaining sufficient clinical experience. Students from smaller units sometimes spent time in other units by arrangement.

Supervision was discussed from the ANNPs' perspective in Chapter 5 (see Figure 22). The clinicians were also asked about teaching in the home unit. The degree of direct involvement in clinical teaching varied: in five of the 10 units in which data were collected, while the consultants had a more general role in terms of responsibility, in practical terms the registrars had the major role in teaching and supporting ANNPs as they learned the new clinical skills.

Thus in some units, the consultant talks through each procedure with explanations, the student then carries it out with the consultant observing and then when safe, under continuing supervision 'until confident and able'. In other units the practical teaching may be less, and though not necessarily formal, is still medically oriented and provided by an experienced registrar with the consultant only peripherally involved. In this context, having a registrar able and willing to support the ANNP student is critical. Although some registrars are more involved in the clinical practice training, the assessment forms described in Chapter 2 on the clinical skills aspect of the programme are filled in by the designated clinician mentors for each student. Where units are busy and where the ANNP or ANNP student load is high, it may be useful to have middle grade staff help with the clinical experience and continuing support. The role of staff at this level in relation to the programme and the needs of ANNP students requires further consideration. (The perspective of registrars and SHOs working alongside ANNPs in neonatal care is discussed is discussed in Chapter 7.)

6.6 Theory and classroom links with practice

The clinician mentors were asked how well the classroom-based teaching had prepared the ANNP students for work in the neonatal unit. Of the 12 interviewed, half thought that the formal classroom teaching prepared the students very well for work in the neonatal unit:

'There was a high level of teaching in the course which is very intense and concentrated. The 405 [ENB 405 post-registration qualification in neonatal nursing] is 'Mickey Mouse' in comparison.'

The remainder were split between thinking the preparation was 'quite good' and that 'it was OK, but . . .'. At the same time as feeling generally positive about the programme, the mentors felt there were problems:

'It prepares students very well. Seemed to be excellent, but crammed. It is a huge jump to making diagnoses and planning treatment. The medical model needs emphasis and assistance is needed in transition to a medical style. This aspect needs even more time.'

'Sometimes I feel they have too much knowledge for their own good. There were some inaccuracies and simple things not known. Medical students are put through the same mould, but nurses come from a different background with more rigid structured modes of learning. ANNPs have the ability to learn, but need to be taught how to use that.'

'ANNP training is compressed into a very short time period. During this they are given as much knowledge as middle grade registrars.'

'Not enough time is spent in linking theory with practice. There is nothing wrong with overlap and duplication. We almost needed to do the course first ourselves.'

'There is an underlying assumption that medical staff can teach, but there is a split between the teaching and support required. More structure is needed and a broad measure of agreement about the need for mentor training.'

A wide range of issues were raised in the interviews, some intrinsic to training nurses for a new role which in many ways is seen as medical in character, and others more specifically related to the programme itself. It was suggested that the links between the training centre and the home units need to be stronger, that mentors needed more support and training, and their own assessment during the programme, and that there were some areas of the programme which varied in quality. On this latter point, the aspects mentioned included the basic sciences, pharmacology, biochemistry and resuscitation. A need was identified by several clinicians for the basic science to have more direction and closer links with clinical practice. The lectures were not seen as sufficiently related to neonates or with a sufficiently clinical orientation, and it was suggested that one solution may be to have more paediatric teaching input. The very real difficulty of teaching all that is needed in the time available was emphasised.

Another problem identified was that the ANNP students as neonatal nurses have 'no framework for making diagnosis, probably associated with the absence of an academic background.' They need 'skills in logic and reasoning in the process of diagnosis, leading on to therapy and action.' It was suggested that more teaching using case studies and presentations of these could help in this area, but also that selection for the programme was critical.

During the interviews the clinicians, like the qualified ANNPs, were asked about situations for which the ANNP had been unprepared. Seven of the 12 said they could think of no situations for which the ANNP or ANNPs in their unit were not ready. The others cited instances concerning professional relationships, decision-making, conducting ward rounds and taking responsibility for resuscitation:

'Ward rounds are the most difficult thing for ANNPs. All have some difficulty. They are not left on their own.'

'There is no problem with task oriented roles and no problem with IVs etc. Decision-making is more difficult for nurses even after ANNP training.'

'Taking on task-oriented aspects of the role have not been a problem, but more diagnostic and treatment-oriented aspects are more difficult. ANNPs are unprepared for ward rounds and consultant questions.'

Other more general problems and consultants' observations concerning development and enactment of the role of the ANNP are discussed in Chapter 8.

6.7 Selection of ANNP students

In the interviews, nearly all the clinicians raised the important issue of selection of candidates for the ANNP programme. The criteria given in the programme documentation are listed in Chapter 2, however, the clinicians mentioned and emphasised other points including individual temperament and personality, interpersonal skills, breadth of vision and academic background and ability. One consultant put it succinctly:

'We want bright, able, quick learners who can cope well with stress'.

The same requirement is made of those entering many pressured areas of work, including medicine. The ability to cope with stress, to make decisions and follow them through, to have sufficient insight to know when one is out of one's depth and to have the social and intellectual skills to respond appropriately, seem to be high on the list of requirements for ANNPs, in addition to their nursing skills and experience. In practice, pragmatism comes into the process of selection, especially when a new development is being set up. The need for a long-term view was emphasised, and selection itself was seen as part of the learning experience which will change over time.

6.8 The use of protocols

The use of agreed protocols (as contained in the submission document) within what was the Wessex Region was seen by those planning the programme as an essential element in the new ANNP development. This was from the perspective of effective teaching and training and from that of ensuring high standards of care.

All the clinicians were asked about the availability of protocols and how well they were working for the different activities. Two units had only medical protocols, six had medical and nursing protocols, four had joint protocols of some kind and one unit had practically none at all that could be used by ANNPs or junior doctors in training. In response to the question about how the protocols were working, less than half of the clinicians (5 of the 12) said they worked well. The others said with a note of caution that these were working 'as well as could be expected', they 'would prefer guidelines', and that there 'were not enough of them to comment'. Conflicting views among medical staff were mentioned in relation to protocols. One way of dealing with the 'lobby against guidelines and protocols' was thought to be their development in non-threatening and less contentious areas. In the context of the variable quantity, quality and use of protocols, it is not surprising that a number of the clinicians involved in ANNP training felt that developing and writing these for neonatal care, in consultation and with the agreement of medical staff, should be part of the role of the ANNP.

6.9 The clinicians' view

The need for continuing support after the programme, consolidation of skills and further development was emphasised by many of the clinicians. As one put it:

'Becoming an ANNP requires a quantum leap, this is not just a bolt-on addition to neonatal care nursing.'

The frustration of the ANNPs after the programme was evident to the clinicians, but at the same it was felt that:

> *'They need quite a long consolidation period, though they may not be aware of it.'*

Many of the consultants interviewed saw the programme and the first three cohorts of ANNP students as part of an initial phase in a new venture, and took a long-term view in considering the whole development.

The constituents of the role as the clinicians saw it and current unit policy were illustrated and discussed in Chapter 4. At the end of the interview they were asked to sum up their attitude to the development. Despite the concerns and the examples given of these, the attitudes towards the concept of the ANNP were positive. An experienced ANNP can be seen and valued as another pair of skilled hands who can be relied, on and as a long-standing colleague who can understand the medical perspective. Some clinicians involved saw the development as a 'small unit solution', while others saw it as most appropriate for tertiary centres. The majority felt that 'on the whole ANNPs are a good thing' and one went so far as to say he felt that ANNPs were 'brilliant' and 'not just a good thing'.

CHAPTER 7

THE PERSPECTIVES OF JUNIOR MEDICAL STAFF AND OTHER NURSES ON THE ANNP DEVELOPMENT

7.1 Introduction

Junior medical staff working as SHOs and registrars are an integral part of the team caring for babies in neonatal units. They work closely with consultants, nurses and others in providing 24-hour care for this vulnerable group of patients and their families. The changing working patterns of junior doctors associated with the need to reduce their hours and improve the quality of their training have made some aspects of the ANNP development of wider interest. At such a time of change and uncertainty there may be greater differences between individual units, and the views expressed by individuals may be more diverse. In this context, role definition and expectations are critically important.

7.2 Junior doctor training

The junior doctors participating in the study (as described in Chapter 3) were asked during the interviews about their own post and the training provided. Six registrars and 14 senior house officers working in all sizes of unit were interviewed. Sixteen were career paediatricians and the remainder were vocational trainees. The contracted hours ranged from 40-76 (mean 67) and nearly half were working more than their contracted hours. The contrast with the expected 37.5 hour week for ANNPs is marked. Four units were using shift or partial shift systems, but rota systems predominated, ranging from a one in three to one in six. Prior to taking up their present post 14 of those interviewed had previous experience with neonates, in paediatrics or obstetrics.

The junior doctors were asked about their own introduction to the neonatal unit and ongoing education. Half had been given a formal induction and 17 (85%) had some kind of programme of ongoing education of varying quality and duration. As new SHOs half of the house officers had been taught by an ANNP working in the same unit.

> *'SHOs did not have a clinical commitment for the first few days – I just worked with the ANNP who taught all the basics.'*
>
> *'Practical training for different activities was excellent with guidance and supervision from ANNP.'*
>
> *'The ANNP gave cot-side teaching on intubation, blood gases, heel pricks, long lines, and UACs. ANNP demonstrated these first, then supervised.'*

They were also asked about teaching ANNPs in the area of clinical practice: all the registrars had been involved in teaching ANNP students in the home unit and SHOs had also been involved to a lesser extent.

Protocols or guidelines on specific areas of clinical activity are a valuable resource for staff, particularly those just joining a unit. The junior doctors were asked whether they had been given or shown protocols on common activities such as blood sampling and IV drug administration and whether these were medical, nursing or joint protocols: eight had been shown medical protocols, four mentioned nursing and five joint protocols; a third of the junior doctors did not mention seeing protocols of any kind. In addition to being asked about a formal induction to the unit the junior doctors were asked a general question about what helped them most in settling in to work in the neonatal unit. The ANNPs played as important

a part here as the other members of the junior medical staff, with nearly half the junior doctors mentioning both of these groups. The other nurses and the consultants were less important in this respect.

The sample of junior medical staff were not asked directly about the clinical duties undertaken as part of their role, while the senior clinicians in the 10 units had been asked about the duties that different types of staff would undertake; the SHO involvement in these was shown in Table 5, as well as that expected of ANNPs, experienced nurses and nurses with the ENB 405 post-registration qualification. From this it is clear that with only minor differences between units, the duties of ANNPs, SHOs and registrars appear to overlap. In all units SHOs, like ANNPs, undertake a range of routine duties that include ordering investigations, examining babies on the postnatal ward, in the neonatal unit and prior to discharge, presenting cases on ward rounds and being on call for delivery suite. Senior SHOs and registrars also were more likely to be involved in accepting outside referrals, taking charge of emergency transfers, seeing patients at follow-up clinics, teaching more junior doctors and research or audit activities. Family care, bereavement care and follow-up, setting standards and quality assurance were not generally seen as being within their domain.

7.3 The junior doctors' perspective on the ANNP role

As with the clinicians, the junior doctors were asked about areas of clinical activity in which ANNPs might be clinically involved; their views are summarised in Table 12, from which it is clear that blood sampling of all kinds and using a blood gas machine, siting cannulae and UACs, carrying out intubation and lumbar punctures were generally thought to be appropriate for ANNPs.

Elements of Practice	% Junior Doctors
Arterial and venous blood sampling	100
Administration of antibiotics and other drugs	95
Calculation and ordering of TPN	75
Siting IV cannulae, IA cannulae and UACs	100
Insertion of chest drains	75
Performing lumbar punctures	100
Intubation	100
Use of blood gas analyser	100
Cranial ultrasound examination	30

Table 12: Elements of clinical practice perceived by junior medical staff to be appropriate for ANNPs (n=20)

There was less certainty about the calculation and ordering of TPN and insertion of chest drains and considerable doubt about the use of cranial ultrasound.

> *'Radiologists always used to do the cranial ultrasound, now the paediatricians have taken over the task. It is questionable whether it is right to devolve the procedure further 'down' to nurses.'*
>
> *'ANNPs could do with extra training for cranial ultrasound'*
>
> *'Chest drains are a medical thing, more invasive, and the most senior medical staff should do these.'*

'If a baby is sick enough to need a chest drain then he needs a doctor.'

The junior doctors were also questioned in the same way as the clinicians had been asked about more general activities appropriate to the role of the ANNP (Figure 26). Like the clinicians, the junior doctors thought that ANNPs should be involved in deciding on patient admission, but not in accepting outside referrals, in doing postnatal and discharge examinations, but not in seeing patients at follow-up clinic:

> *'Most follow-up clinic patients are not neonates any more. One is dealing with more general aspects of growth and development. Have ANNPs the training for this? It should be a paediatrician's responsibility.'*
>
> *'Seeing patients at follow-up clinic is not appropriate, as diverse paediatric knowledge is required.'*
>
> *'ANNPs could only see patients at follow-up clinics with supervision and not when babies become paediatric patients, this is outside the scope of an ANNPs knowledge.'*

Decide on Patient Admission	85 %	**Admission and Discharge**
Accept Outside Referrals	35 %	
Examine Newborns on Postnatal Ward	95 %	**Examining Patients**
Carry Out Discharge Examinations	100 %	
See Patients at Follow-Up Clinic	20 %	
Be On-Call for Delivery Suite	100 %	**Emergency Care**
Responsible for Resuscitation at Delivery	95 %	
Take Charge of Emergency Transfer	75 %	
Order X-rays	100 %	**Investigations**
Order other Investigations	100 %	**Prescribing**
Prescribe Infusion Fluids	95 %	
Prescribe Medication	90 %	
Take a Case-load	45 %	**Conventional Medical Activities**
Present Cases on a Ward Round	100 %	
Conduct a Ward Round	25 %	
Certify Death	70 %	
Teach Junior Doctors	95 %	**Teaching**
Teach Nurses	100 %	
Participate in Audit	100 %	**Monitoring Activity**

Figure 26: Junior doctors' perceptions of appropriate constituents of the ANNP role (n=20)

However, one registrar was also concerned, even about ANNPs on the postnatal ward:

> *'I have doubts that ANNPs would pick up the unexpected in examination of babies on postnatal wards. Postnatal checks are not easy, things can easily be missed. Nurse practitioners may not have the required breadth of experience.'*

Taking a case-load and conducting a ward round were less commonly seen as appropriate ANNP activities:

'I am not happy at present for ANNPs to take a case-load and the total responsibility. My impression is that they don't want that responsibility.'

'Not every ANNP has the skills to conduct a ward round. So far the ANNP is not leading much in terms of thought or discussion.'

In contrast, an active role in teaching junior doctors and nurses and in audit was envisaged.

A substantial proportion of junior doctors thought that ANNPs should be able to prescribe infusion fluids and medication.

'Checking ANNPs' work and prescribing is a waste of registrar time.'

'Prescribing medication should become more routine, particularly first-line drugs and surfactant.'

'ANNPs should take charge of emergency transfer, but only if they are allowed to prescribe.'

Most qualified their answer by referring to the need for agreed lists of specific items and countersigning by a doctor being required at present. A small number were less certain all together:

'I am not sure if ANNPs have enough knowledge and experience of inter-organ effects and drug interactions to prescribe. Doctors have that in their training.'

'Prescription of IV fluids is appropriate, so long as a more senior person reviews the practice from time to time.'

The junior doctors were asked open-ended questions about changes in the workload of junior medical staff and how the role of the ANNP fitted in with these, and about inclusion of ANNPs in the on-call medical rota. More than half felt ANNPs should be included on the rota, a few qualified their answers and a third thought that ANNPs were 'nurses, not doctors' and they should not be included in a medical rota at all. The current situation in which ANNP hours are limited to 37.5 per week was commonly raised in this context and the practical difficulties associated with incorporating them into the rota. The problem of discontinuities in patient care was also brought up in relation to their own and ANNP shift work.

7.4 How do junior medical staff see the future of the ANNP?

The majority of junior medical staff thought that all qualified nurses should in the future be taking on more as part of their job, and that selected nursing staff should take on an expanded role. However, in contrast to the clinicians, only half thought one or more ANNPs should be employed in most neonatal units. If ANNPs are employed in the unit, not all the junior doctors agreed about the way that they should be employed. Some thought that ANNPs should work SHO shifts or cover SHOs' work on days, and others that they should do the SHOs' routine work or just provide cover at weekends. Working their own shift system was also mentioned as was just doing the technical medical tasks. Suggested numbers of ANNPs and working patterns were put forward by individual junior doctors for a range of differently sized units:

'Six ideally, the unit should be run by ANNPs, working a shift system, taking the role of experienced SHO and leaving other nurses to do the nursing.'

'Three to cover daytime shifts seven days a week. They should work in tandem with SHOs, but be able to utilise nursing skills.'

'Ideally one SHO and one ANNP on each day shift.'

'Two only. They are not required at night, but needed to work on busy days when routine investigations are done.'

When asked about the benefits of having ANNPs working in neonatal care, these largely revolved around junior doctor training and support:

'The ANNPs were wonderful carrying juniors through the first few days.'

'The ANNP has worked on the unit for a long time, and so knows the nitty-gritty i.e. the individual consultants' likes and dislikes and where everything is kept etc.'

'ANNP is more available and generally more approachable than the registrar. The nursing background helps, knowing how to handle babies and teach.'

'ANNPs allow junior doctors 'time out'.'

'The introduction of ANNPs made it easier to introduce a shift system.'

'The ANNP does routine things, so the doctor can concentrate on more important things.'

The approachability and nursing experience of ANNPs was particularly valued:

'They reduce the workload, give advice and are a constant source of knowledge.'

'ANNPs are supportive practically and emotionally.'

'They are mostly very experienced, well-trained nurses who have the benefit of nursing skills.'

Effects on patient care, sometimes indirectly, were mentioned less frequently:

'Through working shifts the SHOs are less tired, resulting in better care.'

'Continuity of care is better, particularly in junior doctor change-over periods.'

While some junior doctors listed mainly SHO benefits, others, based on their personal experience, had a more rounded view:

'The main benefit is good cover for neonates. An ANNP has nursing background and nurses are better generally at observing, feeding and understanding equipment. The nurse practitioner combines the best of both. On ward rounds, whereas the ANNP produces a total presentation, doctors present with a medical slant.'

'They give consistent care. ANNPs are willing to teach and babysit SHOs, especially vocational trainees, and coax them into decision-making. Reduced stress levels all round and patients benefit from people who know what they are doing.'

The disadvantages of the changing role of the neonatal nurse and the ANNP development, as far as the junior doctors were concerned, largely centred on difficulties associated with competition and role boundaries. Concerns about their own training are particularly heightened when this is contrasted with the ANNP programme.

7.5 A question of role boundaries?

A need for better communication was identified by the junior medical staff who suggested that SHOs need to be told more about the background and training of ANNPs and that both need to know the extent of the other's role and duties. With any new role that impinges on the working areas of other professional groups, definitions are needed and in each situation adjustments will be required. Negotiating the 'work space', and creating and embarking on a new set of working arrangements require skill, tact and support. Nearly half of the junior doctors interviewed reported ANNP role boundary problems of some sort. These were with SHOs, registrars and other nurses, but those described most fully were situations in which the junior doctors themselves had been involved.

Contradictory and sometimes conflicting views were expressed. ANNPs were seen by some as encroaching on the work of experienced doctors and at other times more senior staff expected them to behave like the SHOs they are used to working alongside. The period of transition was particularly difficult:

> *'The supervised NNP practice didn't work well, it caused chaos on the unit. Everyone was unhappy, the NNP was seen as a neonatal nurse not as NNP student.'*

> *'They will only work within their perceived limits. The registrar workload almost doubles when they are on duty: prescribing, countersigning drugs and supervising their practice.'*

Competition with ANNPs to carry out clinical procedures was not seen as a problem by some junior doctors:

> *'The ANNP often ends up doing only nursing tasks. A nice person but not strong enough to refuse nursing tasks and help SHOs.'*

> *'No competition. ANNPs don't push themselves to undertake tasks.'*

> *'No problem with competition, doctors get preference and the ANNP backs down.'*

> *'If ANNPs want a slice of the action they must take responsibility for it.'*

Many took the view that ANNPs needed to stand up for themselves, be tougher and in general behave more like doctors:

> *'They are treated as SHOs but don't act as SHOs i.e. don't do the full job.'*

> *'ANNPs are not hungry to do tasks. SHOs are expected to just dive straight in. The SHO model is see one, do one, teach one, the ANNP model is see five, then still want to see 'just another one before I feel confident enough to have a go'. They don't need mollycoddling and should just be told to get on with it.'*

At the same time, several interviewees mentioned the question of overconfidence, without having the medical training and knowledge to fall back on. There was concern on occasions about ANNPs not being willing or feeling able to ask for advice and to recognise a problem when they saw it.

While competition for clinical practice was not seen as much of a problem, some of the junior doctors, particularly the SHOs, did feel they were in competition with the ANNPs for consultant teaching time, and that in terms of materials, protected study time and supervision, they were coming off worst. Some felt they were left with the tasks or duties that the ANNPs did not wish to do. At the same time as feeling there should be limits on what ANNPs were taking on, some SHOs complained they were having to undertake tasks which an ANNP should be able to do. The confusion about the role and duties of the ANNP, and at times even resentment, may be an inevitable element in a new development. However, the concern among the junior doctors interviewed about erosion of the medical role was in general less than had been expected.

7.6 Departing from a traditional role

Diverse views were expressed in the course of the study, and some junior doctors clearly felt very threatened by the introduction of ANNPs to neonatal care. The responses of the junior medical staff who were interviewed are likely to be a function of their experience as junior medical staff working directly with ANNPs in neonatal care, of their knowledge of the role and associated expectations and to some extent their own professional goals and attitudes. It was felt by some that no skills were being offered over and above those of properly trained doctors, and that ANNPs were merely 'surrogate SHOs'. However, despite doubts and criticisms, on balance most of the junior doctors interviewed (14 of the 20) felt positively about the nurse practitioner developments in neonatal care. The remainder qualified their answers with 'not here', 'in the right setting', 'in a different type of unit' and 'if working on the same footing as SHOs'. One went so far as to say 'if you can't have doctors. ANNPs are the second best thing.'

A key issue arising in the interviews with both senior and junior medical staff has concerned the contrast between the intensive and structured nature of the ANNP programme and the nature of the induction and educational programmes available to junior medical staff working in neonatal care. Linked with this issue is the mismatch between medical and nursing methods of working in terms of shift organisation and rotas, the function and organisation of medical training posts and differences in the pay and conditions of the professional groups concerned. These concerns were put forward not only by the junior medical staff, but also by the ANNPs, senior clinicians and nursing staff in discussing shift and rotas and the organisation of neonatal care.

At a time of experimentation in changing roles, one might expect the diversity of views found. However, the need for adequate role definition and an associated job description is critical, not only for those taking up a new role, but also for those working alongside and to some extent redefining their own areas of activity. If there is to be 'job sharing' between nursing and junior medical staff, then more direct consultation, as well as evidence, is required. There is clearly a need for the concerns of those working beside ANNPs to be addressed by the senior medical and nursing staff in the units as well as by the practitioners. The problems experienced, particularly those of the registrars taking a large part of the responsibility for clinical teaching and practice, need to be considered and their inclusion in discussions and training when ANNPs are to be introduced to a neonatal unit seems vital.

7.7 How do other nurses work?

There are differences between the work undertaken by ANNPs and junior doctors both individually and between neonatal units. However, these differences are less than the differences between both these groups and the qualified nurses working conventionally in neonatal care; the preferred areas of work in neonatal care of these nurses are shown in Figure 27. A quarter of other nurses reported a preference for working in intensive care and a further 22% for attending deliveries, both areas in which ANNPs are active. Others preferred working with babies who were not so ill and with parents, often providing terminal and bereavement care for families. •

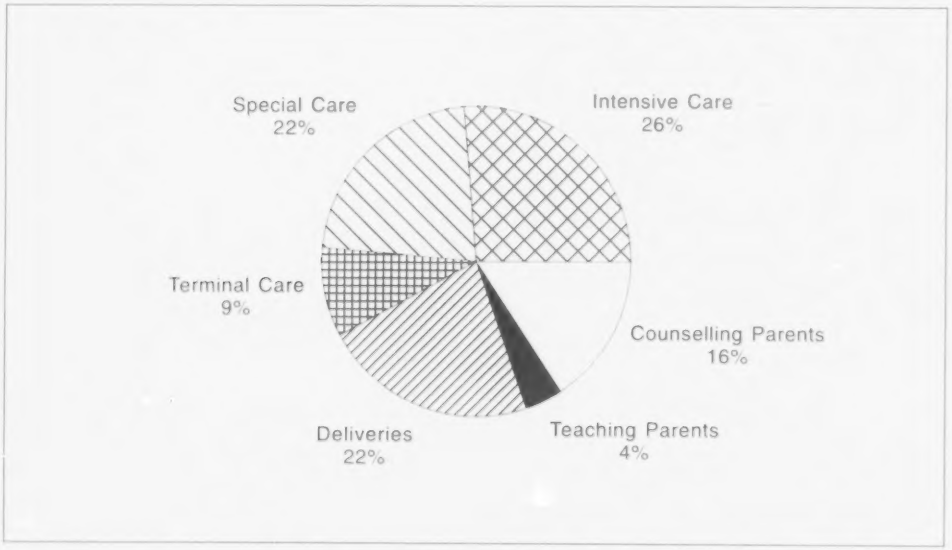

Figure 27: Other nurses' preferred areas of neonatal care (n=79)

A large-scale study of neonatal nursing using data from 24 neonatal units in England showed that, just prior to the first ANNP programme, the qualified nurses in neonatal care had already begun to take an expanded role (Harris and Redshaw, 1994). Those who were qualified in the specialty and those who were more senior were significantly more likely to have undertaken additional technical tasks. Heel prick blood samples were routinely taken by most nurses (90%), as was removal of IV cannulae (89%), and 77% had given IV antibiotics at some time. IV administration of other drugs was regularly being undertaken by 50% of nurses at D-I grade, removal of ET tubes by 44% and setting up of arterial BP monitoring by 41%. Other less common procedures were regularly carried out by some of these nurses, including removal of UACs (20%) and using a blood gas analyser (13%). Less commonly, nurses were involved in inserting an IV cannula (2%), intubation (2%) and removing a chest drain (5%).

The nurses working alongside the ANNPs in Wessex were asked about the same areas of activity and their current practice. A simpler question format than in the study referred to above was used, so the data, while generally comparable, are not directly so. Figure 28 shows that in the last six months these other nurses had undertaken the same duties at similar rates to the national sample of neonatal nurses studied by Harris and Redshaw (1994). Intravenous administration of antibiotics and other drugs were also considered part of their current practice by large numbers of the ordinary nurses working in neonatal care. Their involvement in specific areas of activity is shown in Figure 29; here there seem to be some areas of overlap with the ANNPs. Substantial proportions of these nurses had attended deliveries (78%) and emergency

inter-unit transfers (48%) to assist senior staff. More than half had been responsible for taking charge of the shift, 39% had been involved in unit management and, like the ANNPs, they also had been involved in teaching nurses and junior medical staff.

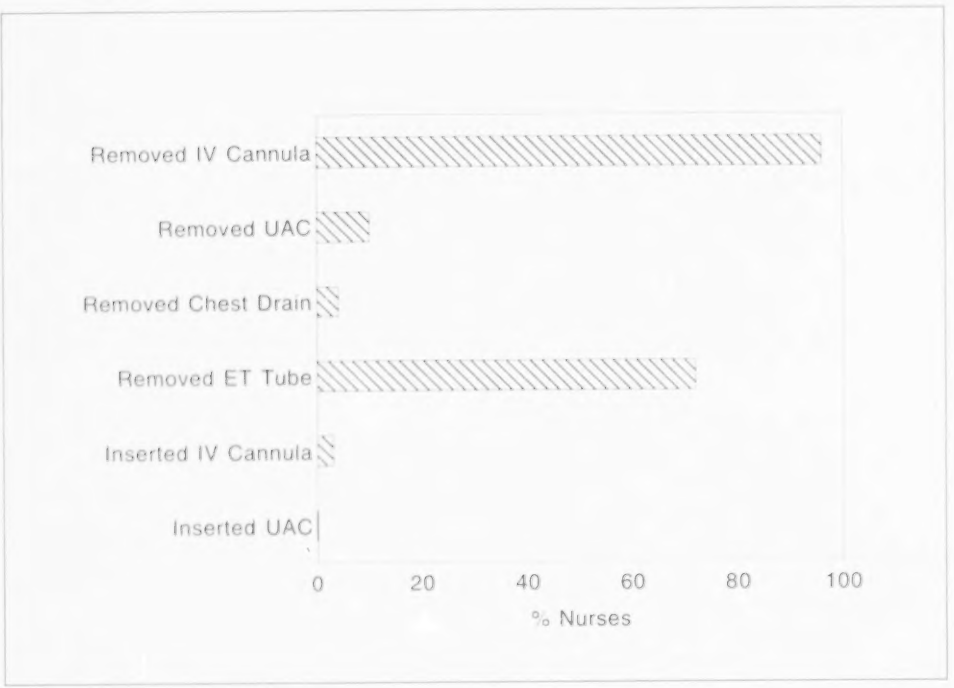

Figure 28: Other nurses' practice in the last six months (n=79)

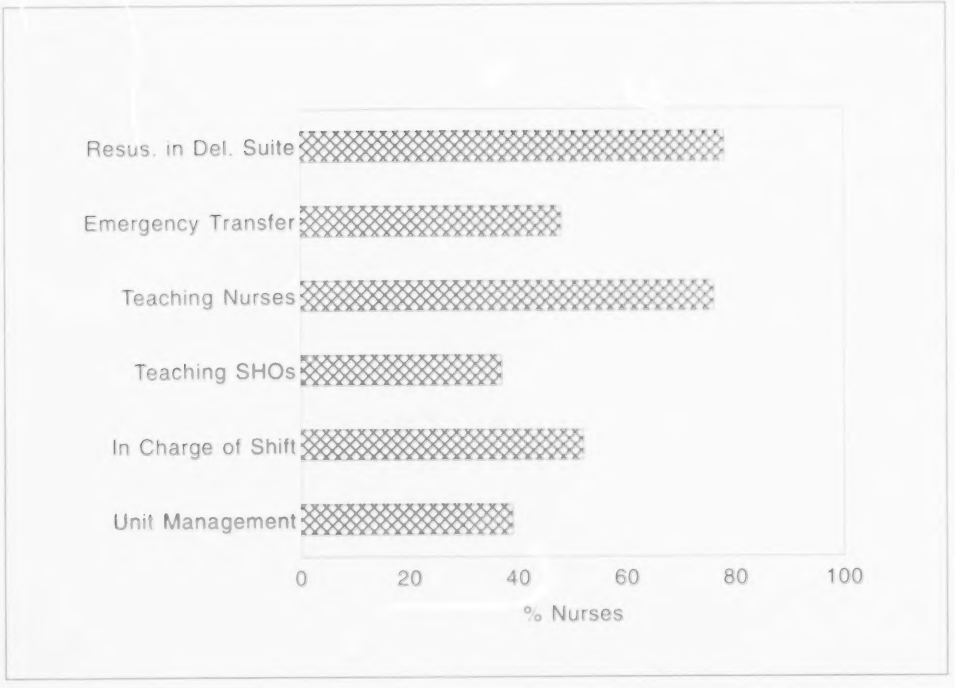

Figure 29: Other nurses' areas of activity in the last six months (n=79)

The nurses working with ANNPs were also asked about undertaking particular activities and assisting ANNPs with these same activities. Blood sampling is an example shown in Figure 30, with large numbers of nurses assisting, much as they do with SHOs, in taking venous and arterial samples, both directly and via a catheter.

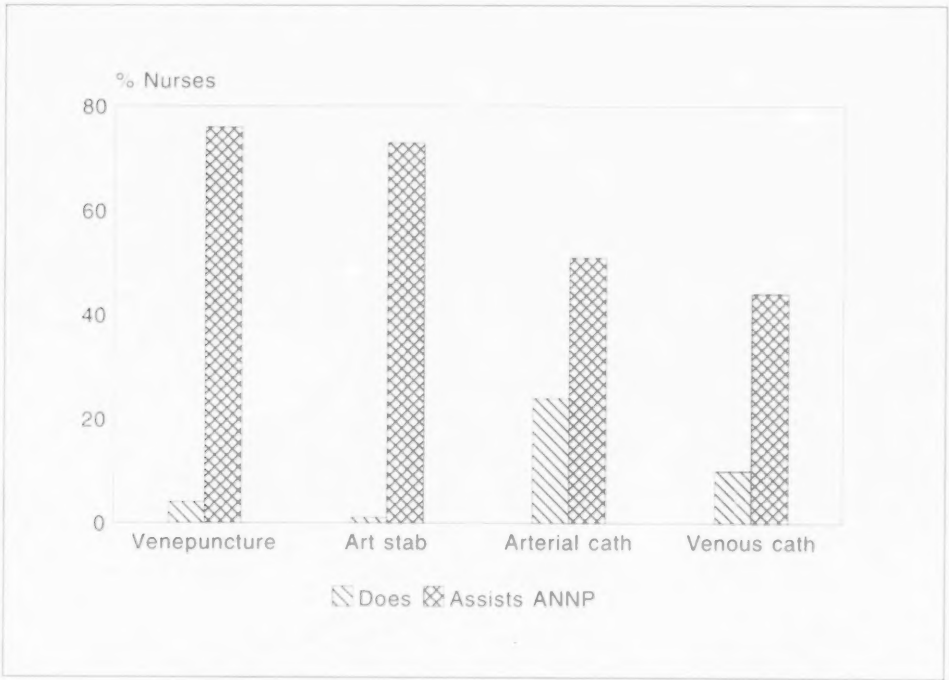

Figure 30: Current practice of other nurses (n=79): blood sampling

7.8 The views of other nurses working in neonatal care

The nurses working in the same units as ANNPs were also asked in an open-ended way about assisting with procedures carried out by SHOs and ANNPs. The lack of experience of SHOs was emphasised by many nurses and what they saw as the consequent effects on the babies. The comments of those who responded are summarised in Table 13.

Other Nurses' Views	%
ANNP more aware of babies' needs	40
ANNP more confident/experienced	32
ANNP prepares and clears up	6
ANNP tidier	6
ANNP more polite	2
ANNP more aware of hygiene	2
SHO focus is procedure, not baby	6
SHO carries on, one more try	6
No difference	24

Table 13: Other nurses' views of assisting ANNPs and SHOs with procedures (n=50)

There was also a general appreciation of the ANNPs doing a more complete job in clearing up after procedures and leaving babies more settled, comfortable and ready for parents.

> *'An ANNP is more skilled than a new SHO. As a nurse she is more aware of nursing needs of the baby and of hygiene and sterility.'*
>
> *'ANNPs consider babies' comfort more than SHOs. ANNPs usually place babies how they found them, rather than SHOs who leave them in a heap!'*
>
> *'The ANNP is usually tidier, politer and kinder to the baby.'*
>
> *'Often the ANNP is more competent and experienced than the SHO, in which case the procedure is less stressful.'*

However, it should be emphasised that approximately a quarter of the nurses responding to this question said there was no difference between assisting an ANNP or SHO; they were 'equally good' or 'there were good and bad of both'.

Asked whether they felt the introduction of ANNPs had affected their own role as a neonatal nurse, approximately a third of the nurses said their role had been affected, but most of these effects were positive, with nurses now feeling they had a new resource, greater support, more respect as neonatal nurses generally, that the necessary skills were more available and procedures were carried out with less delay than previously. A smaller proportion felt that they had been de-skilled: their role had been 'retarded', they now had less responsibility and holistic care was prevented by ANNPs carrying out more of the intensive care. Some nurses felt they were being left behind and expressed the view that they feared being pressurised to take on a more expanded role in the future, however, most (86%) still felt there was room to expand the scope of their own professional practice.

Like the ANNPs, clinicians and junior medical staff, using the same structured question format, the other nurses were also asked about the duties they thought should be part of the role of the ANNP. The constituents of the ANNP role as envisaged by them are shown in Figure 31. Like the clinicians and junior medical staff, substantial numbers of the nurses did not feel that ANNP duties should include accepting outside referrals, seeing patients at follow-up clinic and conducting a ward round. In contrast, most thought that ANNPs should decide on patient admission, be responsible for resuscitation at delivery, examine babies prior to discharge and newborns on the postnatal ward, order investigations, present cases and be involved in teaching nurses and doctors. Like the qualified ANNPs, two-thirds or more of the nurses thought ANNPs should also be involved in routine nursing care, holistic family [illegible]e, setting standards and participating in audit.

Decide on Patient Admission	75 %	**Admission and Discharge**
Accept Outside Referrals	34 %	
Plan Discharges	72 %	
Examine Newborns on Postnatal Ward	71 %	**Examining Patients**
Carry Out Discharge Examinations	81 %	
See Patients at Follow-Up Clinic	20 %	
Be On-Call for Delivery Suite	86 %	**Emergency Care**
Responsible for Resuscitation at Delivery	80 %	
Take Charge of Emergency Transfer	71 %	
Order X-rays	92 %	**Investigations**
Order other Investigations	89 %	**Prescribing**
Prescribe Infusion Fluids	73 %	
Prescribe Medication	56 %	
Take a Case-load	41 %	**Conventional Medical Activities**
Present Cases on a Ward Round	90 %	
Conduct a Ward Round	44 %	
Certify Death	39 %	
Teach Junior Doctors	75 %	**Teaching**
Teach Nurses	98 %	
Routine Nursing Care	66 %	**Nursing Care**
Holistic Family Care	77 %	
Bereavement Care and Follow-Up	49 %	
Undertake Quality Assurance Activities	67 %	**Quality of Care Standards**
Set Standards of Care	79 %	
Develop and Write Protocols	79 %	
Participate in Audit	71 %	**Research and Monitoring Activity**
Undertake Research	84 %	

Figure 31: Other nurses' perceptions of the ANNP role (n=79)

7.9 The benefits and disadvantages of the ANNP development

Like the other types of staff working in neonatal care, the qualified nurses were asked about the benefits of the development, and their answers were categorised. The most common benefit mentioned was having greater skill, knowledge and expertise available, and by inference, better care. Timing was also an important element, and ANNPs were seen as more responsive and quick to recognise and initiate procedures that were needed. Other benefits from the nurses' perspective were the ANNPs' understanding of the nursing role and approach, improvements in communication and the ANNPs as a teaching resource. A few nurses mentioned the retention of experienced nurses in the clinical area and nurses gaining more power and control in their work environment.

The nurses were also asked about the disadvantages of the development; 54 of the 79 (68%) responded on this question with a wide range of points. Some referred to a resulting

dilution in the skill mix in their unit, with senior nurses being lost to the nursing establishment, others to the need for a clear definition of the role, the costs and the need for satisfactory pay and conditions for their ANNPs. Competition for clinical practice was also mentioned, as was the loss of a nursing identity. The perceived change in identity was evident in the 'more medical' orientation of ANNPs, their 'working as SHOs' and the perception that ANNPs were now 'being dumped with the SHO workload' and were taking it on.

Practical problems were reported to have occurred by 70% of the nurses, most of whom gave details. Uncertainty about the role and status of the ANNP was common, and issues associated with nurses feeling that ANNPs should be able to prescribe were also mentioned. References were made to role transition problems and to conflicts with nursing and medical staff and other departments. A small number of nurses lacked confidence in the level of knowledge possessed by the ANNPs.

Role boundary differences were mentioned in the context of practical problems, and when asked directly, 73% of nurses said these had occurred, though they were not necessarily long-lasting. Of those detailed, most were with medical staff (65%) – mainly SHOs, though there had been some problems with nursing staff and more senior medical staff too.

The nurses, like the ANNPs were asked if they could describe an incident or situation in which the ANNP contributed positively; 44 of the 79 did so. The largest number of incidents (35%) focused on the ANNPs' skills in resuscitation and emergency care. Others concerned the better timing of procedures and a few described situations in which the ANNP had picked up on or diagnosed a problem that was then dealt with:

> *'The ANNP was present on the unit when all the doctors were at a meeting and a baby required reintubating. Quick, immediate action was taken, hopefully proving better for the baby in the long term.'*

> *'A very immature ventilated baby required ligation of PDA. ANNP with a neonatal nurse transferred baby to regional unit, cared for baby during operation and brought baby back (with no problems). Previously the registrar would have undertaken the transfer and would have been absent from the unit all day.'*

> *'A sick, ventilated baby I was looking after desaturated and would not improve. ANNP diagnosed a pneumothorax and inserted a chest drain, baby improved before our eyes, doctor arranged the X-ray.'*

When asked directly about teaching input from the ANNPs, 61% of the 79 nurses in the study said they had received clinical teaching and practical demonstrations from the ANNPs in their units. The teaching covered a range of topics of which resuscitation was the most common (42% of nurses), followed by ventilation and procedures such as IV cannulation and blood sampling.

Like the other professional groups involved, the neonatal nurses were asked about their view of the future of ANNPs in their own unit. Only 56% thought that ANNPs would be employed routinely, and though 22% thought all qualified nurses would gradually take on a more expanded role, 11% anticipated little change in the role of the neonatal nurse. As experienced neonatal nurses they were also asked how they saw the expanding role and the nurse practitioner developments. Their responses, illustrated in Figure 32 show that the advent of the ANNP is perceived by many of the nurses, like the ANNPs, as a way of promoting optimal patient care and as a challenging career option for those directly involved. Similar, though smaller proportions saw it as a way of reducing junior doctor workload and improving patient outcome.

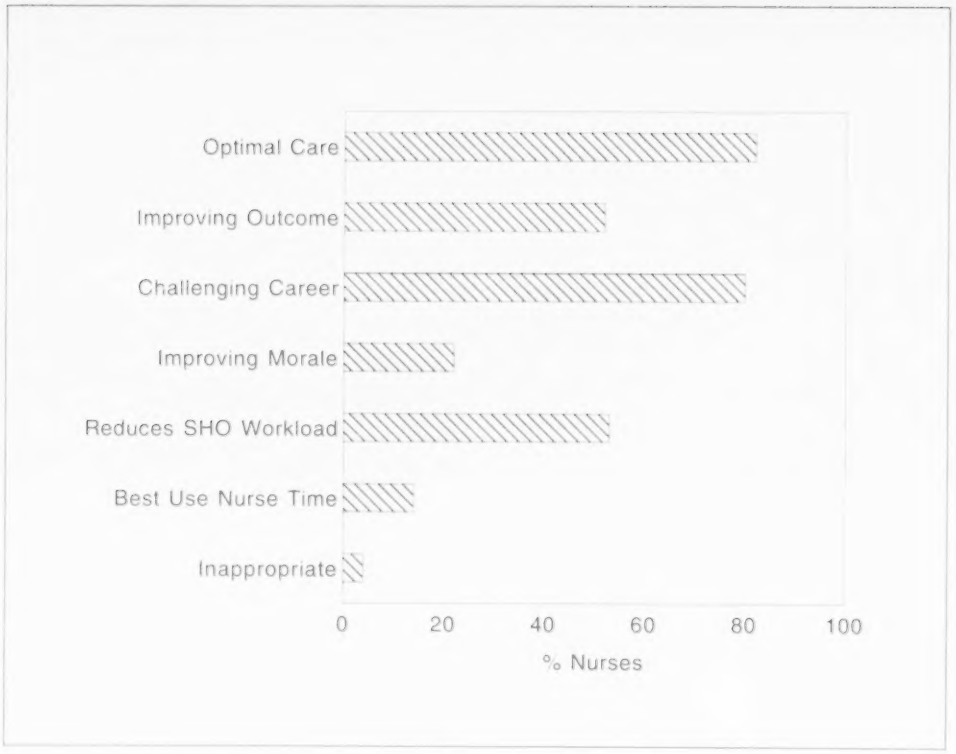

Figure 32: Other nurses' perceptions of the practitioner developments (n=79)

7.10 Adjustments in perspectives

The level of functioning of paediatric SHOs and qualified nurses working in neonatal care is clearly different. The areas examined show that each has areas of overlap with the ANNP, though these may vary between units. The evidence from the diary data and from the direct observations suggests that the more conventional nursing activities are being undertaken by most of the ANNPs to a rather limited extent, especially when they are acting as SHOs.

The lack of adequate role definition, particularly for some ANNPs, makes their position unsatisfactory. Conflict over territory and boundary battles or disputes are probably inevitable in the context of a new development. Apparent changes of loyalty or what are perceived as incomplete changes of role can make for difficulties. The dissatisfaction and concern felt by some of the junior medical staff, though it may be construed as part of the process of adjustment, needs to be addressed, as do the other nurses' worries about ANNP status and losing valuable experienced members of staff to the medical side of care. Adjustment to the changes that come with the introduction of a new role is likely to be facilitated by more information, better communication and continuing consultation with all the medical and nursing staff involved.

8.1 Transition to the role of ANNP

Inadequate role definition and the consequent ambiguity for ANNPs and those working with them makes changing roles an uncertain enterprise at times. In the course of the present study it was found that misunderstandings about the role, the problems of dual roles as ANNP and manager or ANNP and senior nurse, and the absence of sufficient funded ANNP posts do not make such a transition easy. Changes of uniform or absence of a uniform can usefully signal a tangible change in status and function, but are not sufficient in themselves. Some ANNPs have more clearly defined roles than others and with different designations for different shifts, there can be doubt about which 'hat' is being worn. These kind of situations may be symptomatic of the teething problems in a new development with all the associated attitudinal change and organisational adjustment that is required. The way ANNPs are currently being used differs from unit to unit and the role and perceptions of the role differ accordingly. However, whether this is linked to 'local need' and what is really meant by that term in this context requires clarification and justification.

Some ANNPs and their nursing colleagues see this development as a way of nurses gaining power and taking control and responsibility in a way that they have not been able to in their traditional role. Others see it as an arduous, but effective way of escaping the 'handmaiden' image and the clearing up duties. The role models at present are coming from the medical profession – that is from the SHOs, registrars and consultants. It is not yet clear whether this is just a natural stage in the development and whether, with time, the situation will change as ANNPs separately develop their own models.

For the units, ANNPs and students studied, the emphasis was on functioning at SHO level or beyond, in getting the clinical practice, consolidating it and maintaining it. However, there is a danger that when ANNPs have consolidated their skills in these areas they may also have set a pattern of work which will be difficult to change when they wish to develop or advance the role in other directions. The substantial medical knowledge base and the clinical skills gained might be better conceptualised as the foundation on which to build the research, teaching, psychosocial and behavioural knowledge to be used by ANNPs. However, implicit in this two-stage view is the assumption that the second stage is as integral as the first in the full development of the ANNP role. It is possible that once qualified ANNPs have taken on the routine clinical duties that some see as their role, particularly those relinquished by the more junior medical staff, the local needs may not require much more of them.

8.2 Continuing education

The benefits of the apprenticeship period following the programme and a continuing support beyond that formally agreed with the programme organisers are recognised by the ANNPs and clinicians, but there does not seem to be a fully developed system for providing this. A small number of ex-students identifying their own needs does not seem to be sufficient; a more coordinated programme of continuing education that builds on previous learning, as well as 'filling gaps', would seem to be preferable.

When asked directly about their own continuing education requirements as ANNPs, almost all referred to the need for study days as part of an ongoing programme. At least a quarter wanted more consultant teaching sessions in their home unit and half were concerned

about being allowed the time and funding necessary for continuing education at this level. Establishing and maintaining clinical competence in the different settings described is a critical issue in the context of the large inter-unit variation reported. In the light of this, perhaps re-assessment of practical competence at annual intervals should be considered, as has occurred with neonatal nurse practitioners in the United States (Watkins et al, 1992).

On an intensive programme, especially a prototype in the early phases of development, individual and interpersonal differences and demands can make themselves felt. At such a stage students are under pressure, but it is to be hoped that as membership of the group grows and becomes less elitist, these kind of problems become less significant. It would then perhaps be possible to direct some energy towards forming a professional group, which could work together, representing the interests of ANNPs professionally and educationally. Individual needs differ, and combining study days may not be easy at first, however, in the longer term this would be more practicable.

8.3 Whose education?

Relatively soon after qualification, in addition to teaching new SHOs, ANNPs are often expected to set up nurse training programmes in which they are the lecturers. This seems precipitate in view of their own clear need for a period of consolidation and adjustment; some are being expected to switch quickly from student to lecturer. While ANNPs may have had experience in teaching student nurses while they were neonatal nurses, it could be argued that teaching 'advanced' or 'expanded' skills may require more preparation than simply being taught themselves. The role of relatively new ANNPs in a more formal teaching situation with ANNP students also needs careful consideration. While they may function well in workshop sessions, their limited breadth of experience may render them less appropriate for formal classroom teaching responsibilities immediately after qualification. It may be that with greater academic recognition of the programme and the option of further study to degree level, that this problem could be better addressed. The further possibility of working towards a higher degree is in line with the established framework for the Board Higher Award and current Post-Registration Education and Practice (PREP) requirements concerning advanced practice.

8.4 Professional development

When asked about the practical problems in relation to the ANNP development, supervision was frequently mentioned by ANNP students, while qualified ANNPs largely focused on the difficulties inherent in combining nursing and medical roles; difficulties in relationships with medical staff and prescribing were mentioned less frequently. The following comment illustrates a number of points:

> *'When working on the nursing rota I would try to combine my nursing and ANNP role. This worked very well when the number of infants I was caring for on a shift was only one or two, and especially if I was looking after an ill infant who required blood gases, insertion of lines, ventilation changes, fluid/electrolyte balance, inotropic support, surfactant etc. I was able to undertake these sorts of procedures and deal with not only the infant's nursing needs but also its medical needs. However, when my workload increased and the number or level of dependency of the infants I was caring for increased, it created problems – other SHOs and some registrars were not able to understand that whilst I was working as a nurse – my responsibilities to my infants was mainly to ensure that their nursing needs were met first.'*

In the context of these kinds of immediate needs, professional development may not seem so relevant. The ANNPs were asked a number of questions about this aspect of their own situation. Only eight of the 15 who were qualified said they had started to compile a portfolio that reflects their practice and professional development in line with PREP requirements. They were also asked how they would like to see their current post developing in the near future. Some wanted to be working in a nurse-led neonatal unit:

> *'To have a rota of NNPs with their own case-loads. Run follow-up clinics. To have the right to prescribe drugs. To be with a junior NNP and be the registrar.'*

and others simply wanted the status they felt was due:

> *'I think that NNPs have to develop a professional status that is missing at the moment.'*

More involvement in nurse education was also mentioned, as was undertaking research. Longer term career plans for nearly two-thirds of the ANNPs (nine of the 15) consisted of working as an ANNP; two thought they might move on to paediatric intensive care and four did not know. Moves to larger units and to more senior posts were also options that might be tried. It may be that the ANNP development is a venture that some nurses will take part in for a few years, work very hard at, burn out or change gear and then move on. Alternatively it may be a career move which allows quite senior nurses to stay in their chosen specialty. When asked the same question near the end of the programme, just before starting the apprenticeship period, students were unable to look very far ahead; they were most concerned about becoming confident in clinical practice, improving the quality of care for babies and justifying having been sent on the programme. They also expressed a continuing desire to learn and further their knowledge base.

The qualified ANNPs and students were asked about their title and what they thought would be appropriate. From Table 14 it seems that despite the emphasis on retaining and developing the nursing part of the professional role, less than half the ANNPs definitely wanted to keep 'nurse' in their title. A danger in creating a new professional hybrid is that such individuals may initially feel unable to identify with either medicine or nursing and have yet to develop their own professional identity. A lack of 'belonging' can lead to a sense of isolation that is professionally debilitating.

Title	Number
Neonatal Nurse Practitioner	3
Advanced Neonatal Nurse Practitioner	3
Neonatal Nurse Clinician	2
Advanced Neonatal Practitioner	6
Neonatal Practitioner	4
Don't Know	9

Table 14: Job titles suggested by the ANNPs

8.5 Holding on to the nursing

The nature of the programme and the kind of professionals graduating from it have been the focus in this study. The programme, like others that have now been set up, is presented as a nursing development, and yet in the short term it could be seen rather more as a development for individual nurses. In practice, in the wider context of the changing organisation of health care, the use of advanced nurse practitioners in acute hospital specialties is likely to be 'owned' by a variety of professional groups.

The extent to which ANNPs in funded posts are really taking part in nursing care is variable, as the data show. It seems reasonable to question whether 'holistic' care is a realisable goal for ANNPs, or for anyone in neonatal care with its present organisation and staffing difficulties (Redshaw, Harris and Ingram, 1993b; 1993c). It may be that the term is being applied to the individual nurse, when it should be the goal of the team, or that it is more of a philosophy than a practical possibility. Many nurses in neonatal care are dealing with more than just the patients' medical requirements and looking after the broader needs of babies and their families in their day-to-day work, but in acquiring additional skills, the ANNPs, while being able to do more for a small group of patients, are also more in demand to carry out procedures and checks on much larger numbers of babies. Certainly most of the ANNPs studied were working hard to provide improved patient care by using their nursing skills and experience in anticipating problems, handling babies, carrying out painful procedures, and settling them afterwards. This was evident from the reports of other nurses and from the direct observations. However, is holistic care more than this? Some ANNPs seemed relieved to have left the nursing role behind, and it may be that moving into a more specialist technical area of expertise is a natural progression. The goals of providing continuity and holistic care, at this stage of the development at least, appear to have been compromised by the pragmatics of the moment. However, with sufficient numbers of trained and qualified ANNPs the situation could be different.

8.6 Advice to others

Finally, the ANNPs were asked what advice they would now give to other neonatal nurses planning to take the ANNP programme. There were doubts, notes of caution and encouragement among the advice offered:

> *'That it is hard work and something that they will never have experienced before. They must have total commitment and be prepared to give 110%. To have thought very thoroughly if this is the right option for them. To sacrifice a lot of social activities during the course and to expect your social life to go out of the window whilst on the course. Not only yourself but also one's family and friends do suffer. To have broad shoulders and be prepared for anything and everything.'*

> *'DO NOT!! Think very carefully of the implications of doing the course and the job. Talk to qualified NNPs and listen to the pressures and strife they have endured to get to where they are now. Talk about funding carefully with managers. Be prepared for lots of upsets.'*

> *'This is an excellent career move for anyone who wishes to develop their clinical skills. We have a good opportunity to improve the standard of holistic care for sick newborn infants. Be prepared to work hard – go for it!'*

8.7 Future needs

The future for the development seems to be assured; the value of having nurses with the skills these ANNPs have acquired is recognised and perceived positively by most of the professional groups with whom they interact and work. The flexibility and adaptability are also valued by employing organisations, and more are seeking to send nurses on such programmes. The impetus towards training and employing ANNPs comes from two sources, only one of which originates in the nursing profession. The other is the drive to reduce junior doctor workload and hours. The effect of the introduction of the ANNP model on junior doctor working conditions was not within the remit of the present study, though it touches on some of the issues associated with junior doctor training. The structured nature of the ANNP programme, and the clinical practice requirements, provide a marked contrast with the programmes usually provided for junior medical staff. The possibility of joint and multi-professional education in this and other specialties is being considered in the setting up of similar advanced programmes.

The objective in establishing nurse practitioner programmes and the type of nurse produced may vary. Some neonatal units want fully-fledged ANNPs, but many simply seem to want a number of their nurses to have the extra skills to use as and when needed. In such cases, an upgraded version of the ENB 405 post-registration neonatal programme may be needed; if the aim is to expand the role of the nurse, then perhaps a diluted form of the ANNP programme is needed. On the other hand, if ANNPs are seen as an answer to the shortfall in junior medical staff in the acute specialty of neonatal care, then in terms of technical knowledge and theory the programme does seem to prepare them well. With time and the kind of changes suggested, the balance of the programme could be better adjusted towards producing ANNPs; the practical skills are dependent on clinical work and supervision in the home unit by senior medical staff, which may make this a more variable aspect of the educational process. However, full realisation of many aspects of the role of the ANNP may be as dependent on nurses' individual characteristics and pre-existing interpersonal skills as on what they have been taught.

While ANNPs in a range of situations have now become part of the medical workforce, relieving the intensity of working in neonatal care and helping with the reduction in hours, what of the future for them as professionals working in the health service? What did the educational programme aim to produce? Are they no longer nurses, and does it matter if they are not? Are they to be non-career grade 'second class doctors'? Where will this professional development lead? A longer term view and planning is needed on the ANNP development and its implications for nursing and medicine. Since neonatal care is an area where advanced nursing programmes have been set up and others are being planned, it may provide a model for this type of education and practice in other specialties. While this may be one way of overcoming the skills shortage in an acute area of care, however, it could be argued that specialist nurses of a more conventional sort could be trained, rather than ANNPs with this type of intensive and relatively expensive programme. However, if the experience with ANNPs outside the United Kingdom is considered, it seems that there is a place in neonatal care for the bedside nurse, the ANNP and paediatric medical staff in training.

8.8 Issues emerging from the study

The nursing population is changing over time, and the pool of experienced neonatal nurses from which the students for the ANNP programme are selected is also changing. In the longer term, the advanced practice educational requirements of nurses such as those being prepared through DipHE programmes may be different.

With the small number of subjects and sites available for study, an approach was taken which aimed to maximise on the data collection. Using qualitative, and where possible quantitative data, a fine-grain picture has been produced of a new development, which answers the questions implicit in the project specification which were listed in Chapter 3. The focus was on the functioning of advanced neonatal nurse practitioners and on assessing the educational programme of preparation that had been designed to support this. The work experience and perspectives of the nursing and medical colleagues in the different professional groups were obtained and, where appropriate, compared using a range of specifically designed instruments.

Among the salient issues to emerge from the research on the ANNP role were concerns about role definition, differences in practice and expectations, overlapping areas of skill, effecting a transition and retaining the qualitative nursing aspects of care. The issues emerging from examination of the programme, following a cohort of students and from collecting data from qualified ANNPs were concerns about selection, the amount of classroom teaching and the associated academic workload, clinical supervision and support. At present this is a medically oriented programme, in which nursing issues and values are easily swamped. If the aim is to produce individuals who can act as advanced nursing role models, high quality nursing input is required in a number of areas. The involvement of experienced neonatal nurse practitioners working in other countries, and advanced nurses from other related specialties could raise the profile of nursing in this context.

Recognition of the achievements of those undertaking the programme and the skills they have acquired, by medical and nursing staff, may facilitate ANNP initiatives that could impact positively on the development of neonatal care in a broader way. The extent of opportunities that exist for change and the possible effects have barely begun to be realised.

8.9 Recommendations

In completing this exploratory research project the following recommendations are made.

Regarding the programme

- The duration of the programme be extended so that it takes place over a minimum of 12 months (nine months and three months apprenticeship).
- A recognised or certificated Diploma in Advanced Neonatal Nursing be issued by the University of Southampton following successful completion of the programme.
- An opportunity be developed to obtain the qualification of BA/BSc, following successful submission of a dissertation, to be completed within, for example, three years of the diploma being awarded. (The points gained could also contribute to a higher academic qualification).
- The need for more mentor training be recognised, and opportunities provided for mentors to discuss the issues arising from involvement in the ANNP development and training.
- Selection criteria for the programme be subject to an ongoing review, and greater emphasis be placed on the need for neonatal intensive care experience.
- There are areas needing more emphasis within the educational programme if its goal is to enable ANNPs to provide 'holistic' family care.

- The programme was presented as an essentially nursing development, and a longer programme should include more advanced nursing topics that could better promote effective leadership, decision-making, negotiation and advocacy skills.

The role of the Board

- The Board should be involved in the cross-disciplinary working parties currently considering the ANNP development, in association with the other professional bodies concerned (British Association for Perinatal Medicine, British Paediatric Association and Neonatal Nurses Association).
- Further advanced practitioner programmes of this type should be referred to a specialist group at the Board, with a view to supporting and advising the education officers involved in approving such programmes.
- In association with the above recommendation, a discussion forum should be set up to provide an interface between the Board and the teams involved in planning programmes.
- The ability and appropriateness of institutions of higher education to set up, run and maintain ANNP programmes should be considered, as should the ability of different types of unit to support a programme of this kind.
- Further research and monitoring of developments of the advanced practitioner kind should be carried out by the Board over a longer period and possibly at intervals, with a view to educational standards and standards of clinical supervision and practice.
- Programme organisers or coordinators should provide basic information of the same type about those entering and qualifying from the programme to the Board on an annual basis.
- It should be the programme organisers' responsibility to supply the information using the same minimum data set. This information needs to be collated, updated and published as appropriate by the Board.
- The Board should utilise the mechanism for monitoring the career paths and attrition among nurses qualifying as ANNPs, as the basis for advising on the planning and reviewing of advanced practitioner programmes of this type. There should be some commitment on the part of individuals participating in new professional developments to assist in the monitoring process.
- Using the information referred to in the two previous points it would be possible to begin to model the effects of introducing this new role and to assess the requirement for educational programmes. The Board should have an active role in this process.
- There is an urgent need among the nursing profession as a whole to address the subject of advanced and specialist practice, particularly in the context of reducing junior doctor workload. The Board could take a leading role in the debate.

Continuing education and professional development

- A commitment to continuing education is required on the part of those running programmes and individual qualified ANNPs. Structured post-programme education is required which will not only further enhance the knowledge base, but confirm the new professional identity and contribute to professional development.

- ANNPs must take responsibility for recording their own clinical practice and role development in line with the PREP recommendations.
- ANNPs should form a professional group with support, information and networking functions, probably affiliated to the Neonatal Nurses Association and the British Association for Perinatal Medicine.

At hospital and unit level

- The need for the introduction of ANNPs should be examined carefully by units considering setting up similar programmes and sending students on such programmes. This should involve full consultation at all levels and include an examination of present skill mix and staffing.
- Prior to students embarking on the programme, there is a need to have well-advanced plans for funding posts as ANNPs on their return.
- A well-defined role, documented in the form of a job description prior to the programme, but open to renegotiation and development, is required for each student.
- In planning the introduction of an ANNP to a unit, other departments with which the ANNP will interact must be actively involved. These include pharmacy, radiology, haematology, delivery suite and the postnatal wards.
- While on the programme, supernumerary status for students should be agreed and adhered to.
- Recognition of the supervisory role of staff at registrar level is needed. More explicit agreements about the nature of the actual supervision provided by consultants, registrars and qualified ANNPs are needed.
- Longer term consideration must be given to the introduction and integration of the ANNP role and the implications for skill mix and staffing structure in individual units.

At policy and planning level

- With a new nursing development of this kind more central funding, both nationally and locally, is needed in setting up and supporting nursing posts for qualified ANNPs.
- The issue of prescribing by advanced nurse practitioners in the area of neonatal care must be addressed in a realistic way, taking into account current practice and the clinical treatment needs of this patient group.

8.10 Conclusion

In summary, a significant and qualitatively different development of this kind needs recognition, some degree of central support and continued monitoring. As ANNP educational programmes proliferate, the focus must be on standards in education and practice that will enable institutions and individuals to have confidence in the training, skills and abilities of the ANNPs when they qualify. In an experimental phase, change can occur in isolation, but neonatal nurse practitioner developments have now reached a stage where a more coordinated approach is required.

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Appendix I

The clinical role of the ANNP

(Source: ANNP Southampton Course Handbook)

The clinical role, subject to local practice, will specifically include the following:

- Attending high risk deliveries, at times unaccompanied by a paediatrician, for the emergency management of the asphyxiated and preterm infant.
- Examination of, and assessment of the immediate needs of the high risk infant.
- Initiation of treatment of sick neonates, including drug therapy*.
- Initiation of, and subsequent management of mechanical ventilation, which will include monitoring blood gases and altering ventilator setting as necessary.
- Contribution to, and participation on ward rounds.
- Performing, monitoring and interpreting laboratory investigations, and acting on the results as appropriate.
- This will include using certain equipment, e.g. blood gas analyser, bilirubinometer.
- Requesting, and where appropriate, interpreting the results of investigations, such as blood tests, x-rays, ultrasound scans, ECG's and EEG's. Ordering parental fluids, and electrolyte solutions, including total parenteral nutrition*.
- Ordering blood transfusions and volume expanders.
- Transporting sick neonates.

*** NB. Countersigning by a physician is required.**

The advanced neonatal nurse practitioner will have the expertise to perform the following additional clinical procedures:

- Venepuncture and capillary blood sampling.
- Percutaneous arterial sampling.
- Peripheral and umbilical venous cannulation.
- Insertion of percutaneous central venous lines.
- Peripheral and umbilical arterial cannulation.
- Withdrawal of blood from an in-dwelling arterial cannula.
- Attachment and calibration of blood pressure transducers.
- Insertion and removal of endotracheal tubes, used for mechanical ventilation.
- Lumbar puncture.
- Suprapubic aspiration of bladder.
- Exchange transfusion.
- Insertion of chest drains and diagnostic investigations of intra-pleural space, when pneumothorax is suspected at the time of sudden deterioration in a neonate.

Appendix 1

It is envisaged that the following procedures will need to be performed successfully under the supervision of the consultant paediatrician or neonatologist to establish the clinical competency of the ANNP.

The continuing assessment strategy will provide the competency based mechanism to enable valid assessment to take place.

The student should be enabled to undertake the majority of theses activities before the end of the course, but may need extension of supervised practice to complete if available clinical experience is sparse.

Students will need to attain the following:

- Percutaneous arterial sampling (x3)
- Insertion of percutaneous venous lines (x3)
- Peripheral arterial cannulation (x3)
- Umbilical arterial cannulation (x3)
- Insertion and removal of endotracheal tubes (x6)
- Insertion of intravenous cannulae (x5)
- Lumbar puncture (x5)
- Supra-pubic aspiration of the bladder (x3)
- Needle aspiration of the chest (x3)
- Insertion of chest drains (x5).

Appendix 2

Unit protocols

(Source: Course Submission Document p14)

Each unit will have the available protocols for the following:

- Resuscitation of the asphyxiated baby.
- Immediate management of the infant with certain life threatening congenital abnormalities.
- Initial management of the preterm infant.
- Management of the infant at risk of meconium aspiration.
- Examination of the newborn.
- Management of:
  - the small for gestational age infant
  - the infant of a diabetic mother
  - common causes of respiratory distress
  - meconium aspiration syndrome
  - apnoea
  - fluid and electrolytes
  - total parenteral nutrition
  - haemolytic disease of the newborn
  - jaundice
  - birth asphyxia
  - suspected sepsis
  - congenital heart disease
  - patent ductus arteriosus
  - acute renal failure
  - neonatal convulsions
  - necrotising enterocolitis
  - intestinal obstruction
  - the ventilated baby.

Basic knowledge expected prior to commencement of the programme

(Source: Southampton College of Nursing and Midwifery)

Identified below are the specific aspects to be revised:

- Basic anatomy and physiology of all body systems with specific reference to the following aspects:
  - Anatomical and regional names.
  - Maintenance of blood pressure and concept of homeostasis.
  - Types of haemoglobin and their characteristics.
  - Transport of oxygen and carbon dioxide in the blood.
  - Aerobic and anaerobic respiration at cell level.
  - General metabolic function.
  - Formation and composition of body fluids:
    cerebral spinal fluid
    blood
    urine.
- Fetal circulation and adaptation to extrauterine life.
- Comparative physiology of the full term and preterm neonate.
- Passive and active immunity.
- Immunisation schedules.

Appendix 4

Assessment for practical procedures

(Source: Southampton College of Nursing and Midwifery, updated 1994)

Assessment of the following take place at weeks 12, 20, 25, 31 and 37.

- Withdrawal of blood from indwelling cannulae.
- Attachment and calibration of BP transducers.
- Performing capillary blood sampling.
- Performing venepuncture.
- Peripheral venous cannulation.
- Percutaneous arterial sampling.
- Peripheral arterial cannulation.
- Umbilical arterial cannulation.
- Umbilical venous cannulation.
- Insertion of percutaneous central venous lines.
- Insertion of endotracheal (ET) tubes.
- Performing lumbar punctures.
- Performing supra-pubic aspiration of bladder.
- Performing exchange transfusion.
- "Needling" the intra-pleural space.
- Insertion of chest drain.
- Removal of chest drain.

Continuing assessment of clinical performance and functioning

Please grade the following aspects of your student's performance or professional functioning on a scale of 1 to 5, graded as follows:

1. Poor
2. Deficient – incorporates features of both 'poor' and 'satisfactory' categories
3. Satisfactory
4. Good – incorporates features of both 'satisfactory' and 'excellent' categories
5. Excellent.

Please fill in the grade for your student at 12 weeks, 25 weeks and 37 weeks.

	Grade			Poor	Satisfactory	Excellent
	12	25	37			
History Recording				Incomplete. Inaccurate. Poorly recorded.	Usually complete, orderly and systematic.	Invariably complete and accurate 'can spot the rarity'.
Physical Examination				Lacks basic skills. Relies unnecessarily on investigations.	Can usually elicit correct signs. Recognises most significant findings.	Thorough, accurate. Knows and elicits specialist signs.
Investigations				Inappropriate, random. Unnecessarily expensive. Unable to interpret tests.	Usually appropriate. Good knowledge with an orderly, logical approach to differential diagnosis.	Almost always appropriate in relation to differential diagnosis. Excellent at interpretation.
Diagnosis				Fails to interpret and synthesise symptoms, signs and investigations.	Competent clinician. Good knowledge with an orderly, logical approach to differential diagnosis.	Outstanding diagnostician.
Judgement				Unreliable. Fails to grasp significance of findings or take appropriate action. Under or over reacts to emergencies.	Reliable. Competent under pressure. Asks for advice appropriately.	Outstanding clinician who is aware of her/his limitations.
Clinical Knowledge				Poorly read. Lacks appropriate knowledge to construct a differential diagnosis. Fails to learn from experience.	Satisfactory knowledge for dealing with the common disorders. May fail to 'spot the rarity' but learns from experience.	Outstanding knowledge. Can be relied on to 'spot the rarity'. Widely read.
Case Presentation				Poor on history, signs, diagnosis and discussion.	Competent. History and signs correct. Good deductions.	Excellent presentation and discussion.
Reliability				Unreliable, scatterbrained. Forgets to do things to the possible detriment of patients.	Dependable. Does not need reminding. Conscientious in patient care.	Highly conscientious. Anticipates problems.
Professional Relationships				Gets on poorly with seniors, contemporaries or juniors. May even undermine them. Refuses to help out.	Good rapport with colleagues. Usually willing to help in a crisis. Trusted, easy to work with.	Always willing to help even if personally inconvenient. 'An excellent colleague'.

ADVANCED NEONATAL NURSE PRACTITIONER COURSE

CONTINUING ASSESSMENT OF CLINICAL PERFORMANCE AND FUNCTIONING

This form is to be completed by the medical mentor.

Name of Student _____

Date course commenced _____

This is to confirm that I have completed the continuing assessment of clinical performance and functioning form for:

Week 12

Signature of Mentor _____

Comments:

Week 25

Signature of Mentor _____

Comments:

Week 37

Signature of Mentor _____

Comments:

RESEARCHING PROFESSIONAL EDUCATION

A series from the English National Board for Nursing, Midwifery and Health Visiting

Breaking New Ground: an exploratory study of the role and education of the advanced neonatal nurse practitioner

M.E. Redshaw
A. Harris

This report, in the English National Board's series *Researching Professional Education*, presents the findings of a major research study. The report has been published to make Board commissioned research readily available to policy-makers, managers, practitioners, researchers and educationalists. The research has important implications for current and prospective providers of educational programmes of preparation for advanced neonatal nurse practitioners, for neonatal units, and for nurses considering undertaking an advanced neonatal nurse practitioner programme.

These implications concern:

- the role of the advanced practitioner and how it is defined
- future developments of the programme of preparation and the role itself
- the level of support available to students and newly qualified advanced practitioners.

English National Board for Nursing, Midwifery and Health Visiting

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115